THE IBIS.

EIGHTH SERIES.

No. XIX. JULY 1905.

XXIV.—*A Contribution to the Ornithology of the Egyptian Soudan.* By A. L. Butler, F.Z.S., M.B.O.U., &c., Superintendent of Game Preservation, Soudan Government.

(Plate VII.)

The following paper is written in response to the request of the Editors that I would put together for 'The Ibis' such notes on the birds of the Soudan as I have made during a residence of four years in the country. In excuse for its shortcomings, I can only say that I have had very little time to give to ornithology, that I have not been able to devote any trips entirely to collecting, and that I have not resided, but have only travelled in the Provinces, where the "big game" has had most of my time and attention. During the rains—the principal breeding-season of birds in the Soudan,—owing to the increased difficulty of moving freely with transport animals, I have done very little travelling, and have consequently obtained but few notes on nidification. There is probably in the Nile Valley no better spot for observing migration than Khartoum, as representatives of all the passing species seem to drop into its gardens for a rest; but, unfortunately, I have generally been absent on leave until the autumn migration had commenced, and in the spring I have usually been travelling in districts remote from the river. With these excuses, I give my notes in the hope that they may interest some, at least, of the readers of 'The Ibis.'

For kind assistance in identifying specimens I am much indebted to Captain Shelley, Mr. Ogilvie-Grant, Dr. Bowdler Sharpe, Mr. N. C. Rothschild, and Dr. Hartert. To Mr. G. B. Middleton, of the Steamers and Boats Department of the Government, I owe all the specimens mentioned from Roseires and some interesting notes.

To avoid repetition, and to save space, it will, I think, be sufficient, instead of giving references under the name of each bird, to mention here the following papers on collections of birds recently made in the Soudan:—

Captain S. S. Flower.—Notes on the Fauna of the White Nile. P. Z. S. 1900, p. 950.

Mr. H. F. Witherby.—An Ornithological Expedition to the White Nile. Ibis, 1901, p. 237.

The Hon. N. C. Rothschild and Mr. A. F. R. Wollaston.—On a Collection of Birds from Shendi, Sudan. Ibis, 1902, p. 1.

Mr. W. R. Ogilvie-Grant and Mr. R. McD. Hawker.—On a Collection of Birds made on the White Nile. Ibis, 1902, p. 393.

The specimens which I have from time to time obtained are mentioned under their names. I have, however, not aimed at making a representative collection, and have shot very few of the larger and more easily identified species.

I do not think that any further introductory remarks are necessary. For the length to which this paper has extended my apology must be that there are so many birds to notice, and that I have tried to give the local distribution of each species as well as I could.

1. Nectarinia metallica (Licht.).

a. ♂. Khartoum, Dec. 12, 1902.

b. ♂. Bara, April 26, 1904.

The Metallic Sun-bird is common and widely distributed. I have met with it at great distances from water. It is very partial to the waxy flowers of the Sodom Apple (*Calotropis procera*).

2. NECTARINIA PULCHELLA (Linn.).

a. ♂. Khartoum, Dec. 17, 1902.
b. ♂. R. Setit, May 7, 1903.
c. ♂. „ May 13, 1903.
d. ♂. Roseires, May 20, 1904.

This lovely little Sun-bird is abundant and widely distributed. Eastwards I have found it plentiful at Gallabat, on the Atbara, and on the Setit; I have seen it as far west as Bara in Kordofan; southwards it ranges all along the White Nile and Bahr-el-Ghazal; at Khartoum it is common in the gardens; but it does not, I think, occur much further north.

In the bush it feeds principally at the flowers of the acacias, while in Khartoum those of the "Horse-radish tree" (*Moringa pterygosperma*) and the "Indian Shot" (*Canna*) are the chief attraction.

I have seen males in full plumage in every month from September to June, and during the remaining months of the year I have generally been away. In October and November, however, the majority of the males are in transitional plumage.

In October 1904 I was successful in keeping one of these lovely little creatures alive for ten days, at the end of which it escaped in perfect health. I placed it by itself in a cage about a yard square and fed it as follows:—At night I used to put a saucer of honey thinned with water close to my candles. This soon became full of midges and other tiny insects. In the morning I used to pick a bunch of scarlet *Canna*-flowers, doctor them liberally with the mixture, and place them in the cage. The bird fed freely at these from the first and became very tame, sometimes settling on the flowers while they were still in my hand. During its captivity a female used regularly to visit the cage and feed at the flowers placed outside it. Eventually the male bird escaped, and two days afterwards the pair commenced a nest on a *Parkinsonia*-tree just outside my verandah. Unfortunately they were so much disturbed by some workmen employed just at that spot that the nest was never completed.

3. Parus leucomelas Rüpp.

a. ♂. Roseires, Blue Nile, May 20, 1904.

I frequently saw the White-winged Black Tit on the Rahad and Dinder Rivers in March and April 1903. It was generally in pairs or in parties of three or four, which played a sort of "follow-my-leader" game from tree to tree. In April I found a nest-hole about two feet from the ground in an acacia, but the tough wood was too much for my hunting-knife, and I had to leave it.

The skin was kindly obtained for me by Mr. G. B. Middleton.

Ægithalus punctifrons Sundev. I have never seen. I think that I must have overlooked it.

4. Motacilla vidua Sundev.

a. ♀. Khartoum, Oct. 7, 1902.

b. ♂. R. Setit, May 8, 1903.

Quite one of the most beautiful members of its family, the White-winged Wagtail is very local, frequenting only certain rocky reaches of the Nile and the smaller rivers. The localities in which I have met with it are the Shabluka Cataract (40 miles north of Khartoum) and the gorges of the Upper Atbara and the Setit. In these places it is abundant. I once shot a specimen on the river-front at Khartoum, but I never saw another there.

In May the birds were all in pairs on the Setit, and apparently breeding.

5. Motacilla alba Linn.

Seven specimens, ♂ and ♀, from Khartoum.

The White Wagtail is one of the most abundant of the cold-weather visitors. No migrant arrives so regularly to time, or in such numbers at once. It is a late comer and stays late into the spring. At Khartoum in 1901 it arrived on Oct. 19th; in 1902 on the 18th; in 1904 on the 18th. (I was away in 1903 in October.) On the evenings before these days not one was to be seen; in the mornings the birds were in hundreds everywhere. The full breeding-plumage is assumed very early; I have seen examples with the throat completely black as early as February 4th. The change is very rapid, and appears to be a moult of the head and neck only. They spread all over the Soudan from east to west and from north to south.

I noticed in Kordofan that every desert-well had one or two of these Wagtails at it. These wells are in some cases as much as fifty miles apart; they are timbered over, with an opening perhaps 18 inches in diameter, while the water may be 200 feet down. The birds can find them only by following the sheep and goats, which are watered daily in wooden troughs at the well's mouth, and all the chance of a drink they get is by dodging in between the scuffling cattle! Their presence at these remote wells struck me as interesting in the extreme, and shews the wonderful manner in which birds find their way to water. It must not be supposed that a desert-well in Kordofan represents anything in the nature of an oasis. The Arabs there undertake no cultivation whatever, except in the rains, but subsist on their stored grain and on their flocks, which manage to eke out a living by nibbling thorn-bushes and scanty tufts of dry grass, and can go without water for three days. Beyond the presence of these animals there is no surface-indication of water at all.

The latest date on which I have noticed this Wagtail is May 6th.

6. MOTACILLA MELANOPE Pall.

The Grey Wagtail is a very scarce visitor. I think that I have seen it here only twice. From March 15th to March 22nd, 1902, one frequented our steamer, which during that time was lying at a wooding station on the Bahr-el-Ghazal, and came on board very fearlessly; at the end of September 1904 one appeared for a few days in my garden at Khartoum.

7. MOTACILLA FLAVA Linn.

a. ♂. Khartoum, March 15, 1901.

8. MOTACILLA MELANOCEPHALA Licht.

a. ♂. Khartoum, Dec. 2, 1902.

9. MOTACILLA CAMPESTRIS Pall.

a. ♂. Khartoum, Oct. 1904.
b. ♀. ,, ,, ,,

These three species of Yellow Wagtails arrive at Khartoum at the end of August and beginning of September, young birds greatly outnumbering the adults, while during the winter they spread over the rivers of the whole country wherever there are mud-flats, short grass, or cultivation. All three species have the same habits and associate together promiscuously.

In March and April the birds which have gone further south return and swell the numbers of those which have wintered at Khartoum. By this time the full breeding-plumage has been assumed, and the species can much more readily be distinguished. The gathering of Wagtails at Khartoum before the northward migration takes place is a wonderful sight. For mile after mile the strip of short grass which fringes the White Nile is covered with them, their bright yellow breasts making a most pleasing display. They gradually disappear by the end of April, though some linger well into May.

10. ANTHUS TRIVIALIS (Linn.).

The Tree-Pipit is a regular, but not very common, winter visitor. It is one of the later migrants to reach Khartoum, generally appearing in the gardens during the last week in October.

11. ANTHUS CAMPESTRIS (Linn.).

a. ♂. Khartoum, Oct. 23, 1902.
b. ♀. ,, Oct. 28, 1902.
c. ♂. ,, Oct. 18, 1902.

The Tawny Pipit is fairly common around Khartoum from October to March. I saw a few specimens, and shot one for identification, near Gallabat on April 13th, 1903.

12. ANTHUS CERVINUS (Pall.).

a. ♂. Khartoum, Dec. 22, 1902.

The Red-throated Pipit is an abundant winter visitant, great numbers frequenting the river-banks in company with White and Yellow Wagtails. In February and March the birds congregate in immense quantities along the White Nile at Khartoum before departing north. I have not noticed them myself before October. I have seen examples of this species as far south as Meshra-el-Rek, on the Bahr-el-Ghazal (March 8, 1902).

13. ALEMON ALAUDIPES (Desf.).

a. ♂; *b.* ♀; *c.* ♂; *d.* ♂ jr.; *e.* ♂ jr. Omdurman, Nov. 28, 1902.

f. ♂; *g.* ♀; *h.* ♀. Khartoum, Dec. 12, 1902.

This fine Lark is tolerably common near Khartoum and Omdurman, though it keeps very much to particular spots, and it is necessary to know where to look for it. The following note is from my diary:—"Went over to Omdurman with D.-H. to look for this Lark. The desert here is of quite a different nature from that on the Khartoum side of the river, with a hard, very level, dark, gravelly surface. We first came on a single bird, a male, which I shot. Subsequently we met with at least twenty individuals in fairly close company, but mostly keeping in pairs. The birds run very swiftly, their little feet twinkling under them like a Courser's; their flight is very undulating, the white on the wings shewing conspicuously. They were frequenting some mud-ruins, on the low walls of which they settled constantly. They were very tame and confiding."

I have also seen the bird on the softer, dustier desert behind Khartoum; this, however, is by no means, like Omdurman, a sure find.

The extent of the black bar across the secondaries varies considerably.

Among the specimens recorded above:—

a (♂ ad.) had the secondaries barred right across, but the bar was interrupted at the shaft, occurring on the outer web in the shape of an oval mark, edged with buff on the margin of the feather.

b (♀). Secondaries barred across the outer web only; inner web white.

c (♂ ad., breeding). Secondaries with an uninterrupted bar right across.

d & *e* (young ♂♂). Secondaries tinged throughout with fawn-colour; barred right across.

14. CALANDRELLA BRACHYDACTYLA (Leisler).

a. ♀. Khartoum, Oct. 23, 1902.
b. ♂. " Nov. 21, 1902.
c. ♀. " Feb. 10, 1902.

The Short-toed Calandra Lark winters in the deserts of the Soudan in large flocks, being perhaps numerically the most abundant of all our migratory birds. It becomes plentiful near Khartoum about the middle of October (it appeared in 1902 on the 18th), and is still common at the end of March.

15. MIRAFRA CANTILLANS Blyth.

a. ♀. Gedaref, April 27, 1901.
b. ♂. " May 16, 1903.
c. ♂. " May 18, 1903.
d. ♂. " " "

Abundant round Gedaref, especially on low grassy hills.

Mr. Hawker's *M. marginata* has been shown by Messrs. Ogilvie-Grant and Reid ('Ibis,' 1901, p. 628) to have been founded on a bright, freshly moulted example of this species.

16. MIRAFRA CORDOFANICA Strickl.

a. ♀. Um Bosha, May 5, 1904.
b. ♀. " " "

I have met with the Kordofan Bush-Lark only on the road from El Duem to El Obeid, where, from Hashaba to Um Bosha, it is common on the red sandy soil among "Heskanit" grass. The cream-coloured margins of the feathers of the upper plumage are bright and conspicuous in newly moulted examples, but later are partly lost by abrasion. Capt. H. N. Dunn obtained the bird at the Agageh Wells, Western Kordofan, in November 1902.

17. MIRAFRA ALBICAUDA Reichen.

a. ♂. Gedaref, April 27, 1901.
b. ♂. „ „ „
c. ♂. „ May 18, 1903.

The White-tailed Bush-Lark is common on the plains all round Gedaref, in the Kassala Province. On the White Nile, Mr. Hawker obtained it between Kaka and Fashoda; further south I saw it on the Bahr-el-Ghazal in March 1902. A dark-plumaged bird, it belongs entirely to the districts of black cotton-soil, away from which I have never seen it. Round Gedaref it was often in company with *M. cantillans*. Like that species it soars high and sings beautifully. It has a habit, especially at the first signs of dawn, of rising a short distance into the air and making a very curious purring or drumming noise with its wings. Pease ('Ibis,' 1901, p. 629) attributes a similar habit to *M. fischeri* in Abyssinia, describing the sound as a muffled rattling. My specimen *c*, shot in May, was in breeding-condition.

18. GALERITA CRISTATA (Linn.).

a. ♀. Assouan (Egypt), Jan. 27, 1901.
b. ♀. Khartoum, Feb. 5, 1902.
c. ♀. „ Feb. 1903.
d. ♂. „ Dec. 22, 1902.
e. ♂. „ „ „

The Crested Lark, though extending west into Kordofan, generally keeps in touch with cultivation and water, and cannot be described as a desert species. It is abundant all along the Nile to Khartoum; it follows the Blue Nile up to Wad Medani, or a little beyond, but does not, I think, reach the more wooded country further up that river; it extends into Western Kordofan, but in that thirsty land keeps to the vicinity of wells; it becomes gradually scarcer south of Khartoum, apparently not following the White Nile for more than 200 miles, if as much.

If, with such a species as this, one is to recognise as subspecies forms which, though based mainly on geographical distribution, are connected by every intermediate phase, my Assouan bird should stand as *G. c. maculata* Brehm, and the Khartoum specimens as *G. c. flava*.

At Khartoum, the typical habitat of *G. c. flava* Brehm, the bird is most often found on black alluvial soil, or among the green surroundings of irrigated crops, and a *darker* coloured plumage would harmonize better with its environment. The breeding-season appears to be from December to March.

19. AMMOMANES ARENICOLOR (Sundev.).

a. ♂. 25 miles W. of Omdurman, Jan. 1, 1901.
b. ♀. " " " " "

These pretty little Larks are not rare in the desert west and south of Omdurman, and I have also seen them from Omdurman to the Shabluka Cataract. They are generally in pairs or in parties of five or six. I never saw them on the undulating loose red-sand country of Western Kordofan; they generally keep to hard or gravelly desert.

20. AMMOMANES DESERTI (Licht.).

a. ♂? Feb. 25, 1901, Assouan (Egypt).
b. ♂. Dec. 31, 1902, 25 miles W. of Omdurman.

Lichtenstein's Desert-Lark is a fairly common bird on the low rocky kopjes or "jebels" which are scattered over the deserts of the Northern and North-Western Soudan. It is usually met with in pairs, but sometimes in small parties, which continually utter a plaintive "*tweet*" as they flit about the rocks.

The differences between the Assouan and Soudan birds, pointed out by Messrs. Rothschild and Wollaston ('Ibis,' 1902, p. 7), are shown in my two skins.

21. PYRRHULAUDA FRONTALIS Bp.

a. ♂. Hashaba, Kordofan, May 9, 1904.
b. ♀. " " " "

I found the White-fronted Finch-Lark common in the deserts west of the White Nile, as far south as Duem, and between that place and El Obeid; also on the Blue

Nile between Khartoum and Wad Medani; and north as far as Shendi.

On the bird described by Captain Shelley as *P. butleri* I have the following note:—"Dec. 30th to Jan. 3rd, 1903. Large numbers of them from Omdurman to 40 miles west of it. A very much shier bird than *P. melanocephala*, and rather hard to get at with a collecting-gun. Males have a habit of soaring 25 or 30 yards into the air, uttering a twittering call-note, and then parachuting down with wings raised above the back. I found a new nest, ready for eggs, placed against the stem of a *Blepharis*-plant. The white cheek-feathers are very long, and stand out like whiskers in a living or newly killed bird."

On the whole this is much more of a desert species than *P. melanocephala*.

Captain Flower shewed me in Cairo a cage full of living Finch-Larks, probably captured on the Red Sea coast, which he had purchased; these seemed to be of the form or species *P. melanauchen* (Cab.), differing from the Eastern Soudan bird in its narrower white forehead and black nuchal band. In some of the presumably younger individuals, however, the latter characteristic was absent.

22. Pyrrhulauda melanocephala (Licht.).

23. Pyrrhulauda leucotis (Stanl.).

a. ♂. Kawa, White Nile, Nov. 16, 1902.
b. ♂. Khartoum, Dec. 2, 1902.
c. ♂. " Dec. 22, 1902.
d. ♂ jr. " Dec. 28, 1902.
e. ♂. " Dec. 29, 1902.
f. ♂. " Feb. 1903.
g. ♂. " " "
h. ♂. Gedaref, May 1901.
i. ♂. " May 17, 1903.
j. ♀. " " "
k. ♂. " " "

Mr. Ogilvie-Grant ('Ibis,' 1902, p. 411) gives a key for distinguishing *P. melanocephala* and *P. leucotis*, which, he says, owing to want of material, had been united in the 'Catalogue of Birds' (*cf.* vol. xiii. p 637).

Owing to my inability to distinguish them with certainty, even with the aid of Mr. Grant's key, I think that I had better reunite them for the purpose of this paper!

Now, as to identification. Certainly only one species occurs at Khartoum. In this the bill is always white; the white nape-band (measured with the bill at a right angle to the breast) is ·25 of an inch in width; and the predominating colour of the lesser wing-coverts is white, though *black* feathers are always present, sometimes only four or five very small ones, but very often almost as many as the white, forming a jet-black shoulder-patch nearly an inch in length. In spite of this, the bird seems to me very close to typical *P. melanocephala,* and as such I have named my skins. It is, moreover, the same species, shot in exactly the same spot, as the birds collected by Mr. Hawker and identified by Mr. Grant as *P. melanocephala.* Captain Shelley has, however, in a list which I sent him with the skins, altered the specific name to *leucotis* in every case except in that of the White Nile bird (*a*), which he has left as *P. melanocephala.* And it was Mr. Hawker's *White Nile* birds which Mr. Grant identified as *P. leucotis*!

I cannot help thinking that all these Khartoum birds should stand as *P. melanocephala,* in spite of their having more or less black on the shoulders.

My three Gedaref birds I should undoubtedly call *P. leucotis.* These Captain Shelley did not see.

One form or another occurs almost all over the country from the Setit on the east to Western Kordofan, and as far south as Fashoda, but the exact distribution of each, or of the intermediate birds, still remains to be studied.

This is an extremely tame little bird, frequenting paths to pick up the grain dropped from donkey-loads, and barely moving out of the way of passers-by. It may be met with either in pairs or in small flocks throughout the year.

I have the following notes on its nidification:—"Khartoum, Dec. 9th, 1902. Found a nest containing one egg.

The birds were near, but, had not an Egyptian Nightjar risen at my feet and directed my eyes to the ground, I should never have noticed the nest, so exactly did it harmonize with its surroundings. It was a little pad of bits of rag, cotton-waste, string, and goat's hair, placed in the open in a depression between a brick and a piece of dried cow-dung. I revisited the place next day; there was still only one egg, which proved to be on the point of hatching. The ground-colour was greyish white, thickly speckled throughout with olive-brown and grey, forming more or less of a zone at the large end."

"Khartoum, March 18th, 1901. Killed with the same shot two males and one female, which seemed to have set up a *ménage à trois*. The hen contained a single egg, almost ready for exclusion. The other eggs in the ovary were in no way enlarged."

"Khartoum, Jan. 24th, 1903. Found a nest within a few feet of the spot where I found one on Dec. 9th last year. The cock bird was sitting when I detected the nest; he fluttered off and settled about eight feet from me. I glanced down, saw that there was one egg, and passed on. The bird ran back and reseated himself on the egg close to me. I returned in twenty minutes, and found the hen bird sitting, but she was much wilder than the cock, twice slipping off when I was twenty yards from her. I then took the egg. Nest similar to the other."

This species appears usually to lay only one egg.

24. PYRRHULAUDA BUTLERI Shelley.
(Bull. B. O. C. xiii. p. 73, 1903.)
a. ♂. 20 miles W. of Omdurman, Jan. 2, 1903.

25. PYRRHULAUDA LACTEIDORSALIS Shelley.
(Bull. B. O. C. xiii. p. 73, 1903.)
a. ♂. Khartoum, Nov. 25, 1902.

I must say that I, personally, do not consider either of these recently described species as valid.

The so-called *Pyrrhulauda butleri* was very abundant in January on red sandy ground near the wells of Fatassheh,

W. of Omdurman. I thought at the time that it was a more blue-grey-looking bird than typical *P. frontalis,* but I now doubt whether it can be separated.

P. lacteidorsalis I shot at Khartoum, associating with a flock of the ordinary *P. melanocephala.* I believe it to be nothing but a partly cream-coloured variety of that species, and I have not seen another specimen like it.

These are my humble opinions; but when doctors differ, who shall decide? Dr. Reichenow (Vög. Afr. iii. p. 368) admits *P. lacteidorsalis* as a good species, but doubts the distinctness of *P. butleri* from *P. frontalis* (l. c. p. 370). Captain Shelley writes to me that *he* considers *P. butleri* the best-marked species of the two, an opinion apparently shared by Dr. Hartert, who writes to me: "only one—the *butleri*—can be any good."

Both these tiresome little birds are now in the Tring Museum, where I hope that they will remain without further complicating the synonymy of this difficult genus!

26. Emberiza flavigastra Rüpp.

a. ♂. Setit River, May 5, 1903.
b. ♀. Jebel Melbis, April 18, 1904.

This beautiful Bunting is common on the Blue Nile above Wad Medani, on the Upper Atbara, and on the Setit. I also found it numerous near El Obeid in Kordofan.

27. Emberiza hortulana Linn.

a. ♀ jr. Khartoum, Oct. 20, 1902.

A good many immature Ortolans were frequenting the gardens in Khartoum during the week in which I shot my specimen. I have not noticed the bird anywhere else.

28. Emberiza cæsia Cretzsch.

a. ♀. Khartoum, Oct. 20, 1902.
b. ♂. ,, Dec. 22, 1902.

Cretzschmar's Bunting is a very common winter visitor to the Nile Valley. Kawa on the White Nile is the most southerly point at which I have shot it. It arrives at Khartoum in small flocks towards the end of September, and is common until March, but from April to September I have never seen it.

29. EMBERIZA SEPTEMSTRIATA Rüpp.

a. ♀. Setit River, May 12, 1903.

Very local. In June 1901 I shot a specimen of this Bunting on the Blue Nile near Kamlin, but, being caught in a storm that night, was unable to preserve it. I did not come across it again until May 1903, when I found it in small flocks, but rather scarce, on the rocky banks of the Setit. In January 1905 I saw a fair number on the hills at the Shabluka Cataract (the sixth).

30. PASSER DOMESTICUS (Linn.)

I am afraid that I have neglected to pay sufficient attention to the distribution of the Common Sparrow in the Soudan. It is abundant in all towns as far south as Khartoum. On the White Nile it is scarcer, and I have not *noted* it beyond Kawa, but it will doubtless spread as the villages grow into towns.

I think that *P. rufidorsalis* of Brehm can hardly be called a species.

31. PASSER DIFFUSUS (Smith).

a. ♂. Setit River, May 10, 1903.
b. ♂. " " " "
c. ♀. Jebel Melbis, Kordofan, April 18, 1904.

I have met with the Southern Bush-Sparrow from the Setit on the east to the Mazrub Wells in Western Kordofan, and as far south as Fashoda on the White Nile. On this river, however, it seemed scarce, whereas on the Setit and in Kordofan it was abundant. Its note is a regular Sparrow's chirp.

32. PASSER LUTEUS (Licht.).

a. ♂. Khartoum, Sept. 1901.
b. ♀. Bara, April 26, 1904.
c. ♂. " " "
d. ♂ jr. " " "

The pretty Yellow Sparrow is abundant from Berber to

Khartoum, along the White Nile to Duem (and probably further), on the Blue Nile, and in Kordofan, frequenting the cultivated lands in large flocks. Nowhere have I seen it in such numbers as at the wells of Bara, in Kordofan. There, at the end of April 1903, it had collected in tens of thousands, in company with lesser, but great, numbers of *Uroloncha cantans*. Every thorn "zariba" round the cultivated plots was perfectly yellow with them.

At Khartoum it is abundant in the summer and autumn, but little in evidence during the cold months.

The Rock-Sparrow, *Petronia pyrgita* (Heugl.), I have never seen, though I have kept a sharp look-out for it; I think that it must be either very local or very scarce.

33. SERINUS LEUCOPYGIUS (Sundev.).

a. ♂. Between Gedaref and Gallabat, May 12, 1901.

I have come across the White-rumped Serin-Finch almost everywhere I have travelled—from the Setit to Western Kordofan. It is fairly common along both the Niles, associating in flocks. It is easily recognised among other small Finches by its white rump.

About September and October it is often seen in pairs in the gardens at Khartoum, apparently breeding at that season.

34. HYPOCHÆRA ULTRAMARINA (Gm.).

a & *b*. ♀ ♀. Gedaref, May 16, 1901.
c. ♀. Khartoum, Oct. 16, 1902.
d. ♀. „ Nov. 8, 1902.

The beautiful little Indigo Finch is common and generally distributed. It is a very familiar species, frequenting villages and the compounds of houses in the towns, and occasionally entering verandahs to drink from the large earthenware filters. I have seen it in full plumage in every month from August to March, but at all times of the year birds in the blue plumage are greatly outnumbered by the brown females and immature males.

It is common in the town of Khartoum.

35. Vidua serena Hart.

a. ♂. Fachi Shoya, White Nile, Nov. 14, 1902.

Appears to be rather scarce. My specimen is the only one that I have noticed in full breeding-plumage.

36. Steganura paradisea (Linn.).

a. ♂. Jebel Alatarang, June 9, 1901.
b. ♂. Jebel Ain, Nov. 5, 1902.
c. ♂. ,, ,, ,, ,,
d. ♂. ,, ,, ,, ,,
e. ♂. Kawa, Nov. 16, 1902.

The Paradise Widow-Bird is widely distributed in the Soudan; I have noted it from the Setit and the Abyssinian frontier on the east to Fashoda on the White Nile, and to El Obeid in Kordofan. I have met with males in full breeding-plumage in every month from August to December. My specimens, and all others from the Soudan which I have seen, with the exception of two caged birds from the Sobat, have the collar round the neck bright pale yellow. Stark (Birds of S. Afr. vol. i. p. 150) describes this collar as bright mahogany-red in South-African specimens, and in the plate in Dr. Butler's 'Foreign Finches' it is so represented. But in correspondence on this point the Director of the South-African Museum informs me that the specimens in the collection there have yellow collars, and do not in this particular agree with Stark's description. This variation in the colour of the collar seems quite fortuitous, and not connected with locality, as the two chestnut-collared live specimens from the Sobat were accompanied by several others which had the collar yellow.

37. Urobrachya phœnicea (Heugl.).

a. ♂. Meshra-el-Rek, March 7, 1902.
b. ♂. River Dinder, March 1903.

In February and March 1902 I found the Orange-shouldered Weaver-bird fairly common in flocks along the White Nile from Kaka to Fashoda, along the Bahr-el-Ghazal as far as Meshra-el-Rek, and on the Jur River. On the eastern side of the country I have met with it on the Dinder

River close to the Abyssinian frontier. It frequents high grass cover and keeps to the vicinity of water.

38. Pyromelana franciscana (Isert).

a. ♂. Sept. 14, 1901.
b. ♀. Gedaref, June 1901.
c. ♂. Khartoum, Oct. 18, 1902.
d. ♀. „ Nov. 7, 1902.
e. ♂ jr. Jebel Ain, Nov. 26, 1902.

This most lovely little Bishop-Finch is abundant, and generally distributed where there is dhurra cultivation. From its partiality to this grain it is commonly known as the "Dhurra Bird" among Englishmen in the Soudan. The males begin to assume the nuptial plumage of scarlet and black in August, and by the end of that month or the beginning of September some have completed the change, while others are still in a transition-stage. Between January and March they gradually change back to the brown plumage.

They breed in close company, building their nests in high grass, growing dhurra, or bushes. The nests are oval in shape, and woven of strips of fine grass, with a side entrance near the top; the building takes seven or eight days. Three or four eggs are laid, of a bright pale blue. I have seen eggs on Oct. 22nd.

In 1903 I reared seven of these birds from the nest, taking them very young and feeding them on crushed millet-seed mixed with water. They became charmingly tame, flying on to my arm when their cage was opened, and all scuffling head downwards into the tin of grain which I carried for them. The males assumed the red plumage in the following October, when eight months old, but their first scarlet livery is very much paler and duller than that of older birds.

A breeding-colony of these birds is a most beautiful sight. The males keep fluttering slowly backwards and forwards over the glossy dark green dhurra, now settling on the tallest stems, now rising into the air with every feather puffed out, until they look like living balls of black and scarlet velvet.

39. Quelea æthiopica (Sundev.).

a. ♂. Mesjid, Blue Nile, March 31, 1901.
b. ♀. Gedaref, June 1901.
c. ♂. " " "

Very common in large flights on both the Blue and White Niles. Towards the end of May 1901 these birds were in immense flights at Gedaref, drinking at pools left in the rocky khors in tens of thousands. At the beginning of June they were just beginning to assume the nuptial plumage. I have occasionally seen them in Khartoum.

40. Amadina fasciata (Gm.).

a. ♂. Doka, May 11, 1901.
b. ♂. R. Setit, May 7, 1903.

I have met with the Cut-throat Finch in large flocks near Gallabat, on the Upper Atbara and Setit, and in Kordofan.

41. Uroloncha cantans (Gm.).

a. ♀. Kawa, Nov. 13, 1902.

The African Silver-bill is one of the very commonest Soudan Finches, and I have met with it almost everywhere that I have been, from the Atbara across to Kordofan, and from Shendi southwards to Fashoda.

At the wells of Bara, north of El Obeid, in April 1904, this bird was in thousands. It may be found breeding at any time of the year, nesting in thatched roofs, date-palms, and thorn-bushes.

42. Estrilda phœnicotis (Swainson).

a. ♀. Gallabat, May 8, 1901.

The Cordon-Bleu Waxbill occurs throughout the country in suitable localities and is an abundant species. It is common all along the Blue Nile above Wad Medani, on the Rahad and Dinder, at Gallabat and on the Upper Atbara and Setit, on the White Nile, and in Kordofan.

A nest which I found at Jebel Ain on the White Nile on Nov. 15, 1902, was egg-shaped with a hole at the side, composed entirely of fine yellow grass, and placed low down at the bottom of a thorn-bush, where the same yellow grass was growing up through the thorns. It contained four white eggs.

43. Estrilda rhodopyga Sundev.

a. ♀. Khartoum, Nov. 1, 1902.
b. ♂. ,, Nov. 12, 1902.

During winter and spring this pretty little Waxbill is often to be seen in the gardens at Khartoum, keeping in small flocks and feeding on grass-seeds. It is extremely tame, and I believe that it would be possible to capture a whole party under a casting-net.

44. Lagonosticta brunneiceps Sharpe.

a. ♂. Gedaref, May 1901.
b. ♂. Khartoum, Nov. 10, 1902.

This pretty little Fire-Finch is one of the most charmingly familiar and confiding birds in the country. It appears to regard the "zeers" (large earthenware filters), which are to be found in every house in the Soudan, as a kindly arrangement of man for its particular delectation in a thirsty land, and in return frequents his verandahs without a trace of fear. It makes a charming aviary bird, and is from the first lively, fearless, and apparently happy in captivity. Being so tame it can be caught without the slightest trouble under a net propped up over some millet-seed, and if a decoy-bird is used the others will come crowding to it in a moment within a yard of the fowler. So sociable is it that on one occasion a cock settled on my arm while I was carrying a small cage containing a hen; and several times at night I have found wild birds roosting on the cage in my verandah in which I kept my tame specimens.

It seems to prefer the vicinity of human habitations to the lonely bush, and is common about most towns and villages in the Soudan, especially where there is any cultivation of lime-trees.

In the east it is common at Gallabat, Gedaref, and Kassala; in the west at El Obeid; and in the south I have seen it as far as Meshra-el-Rek on the Bahr-el-Ghazal.

45. Lagonosticta nigricollis Heugl.

a. ♂. Gallabat, April 15, 1903.

In April 1903 I found these Finches in large flocks in the khor running from Gallabat to the Atbara. They were at that time in full moult, and it was impossible to get a decent specimen. They are much more shy than the familiar little *L. brunneiceps,* and I never saw them, like that species, frequenting the villages.

46. Pytelia citerior Strickl.

a. ♂. Near Gedaref, June 6, 1901.
b. ♂. 20 miles W. of Omdurman, Jan. 2, 1903.

I have seen the Red-faced Finch from the Setit on the east to Western Kordofan and the Bahr-el-Ghazal. It is a fairly common bird in nearly every place where there are thorn-bushes. At Gedaref I found it in full moult at the beginning of May, but it was in beautiful plumage at the end of the month. It is a tame and inquisitive little bird, hopping about a tent and watching things at very close quarters.

Both my skins are referable to *P. citerior,* as also were one or two birds which I shot in Kordofan, but had not time to preserve. *P. soudanensis* I do not think that I have seen.

47. Sporopipes frontalis (Daud.).

a. ♂. Jebel Melbis, April 11, 1904.
b. ♂. Um Bosha, May 4, 1904.

Abundant in bush in the red-sand country of Kordofan. Generally common round the wells at the villages, though also met with a long way from water. It builds a large round nest of grass in a thorn-bush, the entrance being at the side. On March 31st some birds were sitting on eggs, though want of time prevented me from cutting away the thorns and obtaining them. Small parties of four or five roost together in their old nests at night.

48. Textor albirostris (Vieill.).

a. ♀. Bara, Kordofan, April 28, 1904.

I found this species plentiful in flocks of ten or a dozen in the bush along the road between El Obeid and Bara in April.

They were feeding on the ground, and at first, at a distance, I almost thought that they were some kind of Starling.

49. Ploceipasser superciliosus (Rüpp.).

a. ♀. Jebel Melbis, April 18, 1904.

My single specimen was shot from the top of a large baobab tree between El Obeid and Jebel Melbis. Large numbers of Bush-Sparrows were also frequenting these trees, and I probably overlooked other individuals of this species among them.

50. Sitagra luteola (Licht.).

a. ♂. Bara, April 26, 1904. } Breeding-plumage.
b. ♂. " " " }
c. ♀. Jebel Abu Sinun, April 9, 1904.
d. ♂. Roseires, May 1904.

This is the commonest Weaver-bird in the red-sand country of Kordofan. At Bara it was frequenting the lime- and fig-gardens in immense flocks at the end of April. At that date only a very small percentage of the males had assumed the breeding-plumage. I noticed it daily on the road between Hashaba and El Obeid.

51. Hyphantornis galbula Rüpp.

a. ♂. Gedaref, April 22, 1901.
b. ♀. R. Dinder, April 4, 1903.

This Weaver-bird was in immense flights—tens, if not hundreds, of thousands—between Gallabat and Gedaref in April and May 1901. Though only a few shewed any traces of the breeding-plumage at that date, they were already beginning to build nests in the lime-trees at Gedaref. The numbers of this species in the Eastern Soudan, and of *Hyphantornis tæniopterus* on the White Nile, must be seen to be believed. They can only be compared to locusts in multitude, and their vast flights wheel and rise in the air with a sound like the roar of a hurricane, resembling at a distance great columns of smoke. The damage these birds do to cultivation must be immense; and for this reason I have heard of natives burning their breeding-colonies wholesale. I once passed a disused breeding-place near the

Blue Nile in which the bushes for a hundred yards on both sides of a path, and for a distance of nearly half a mile, were literally covered with their nests. There must at the lowest computation have been many hundreds of thousands of them.

52. HYPHANTORNIS TÆNIOPTERUS Reichenb.

a. ♂. Fashoda, August 1902.
b. ♂. ,, ,, ,,

What I have written about the numbers of the last species applies equally well to the extraordinary abundance of this on the White Nile. I see that Mr. Hawker wrote that he "must have seen many millions," and I can guarantee that there is no exaggeration.

My specimens, in full breeding-plumage, were kindly collected for me by Dr. Sukri Effendi Dib, of the Egyptian Army. He told me that they were breeding in great numbers during August in long grass at Fashoda.

53. ORIOLUS GALBULA Linn.

a. ♀. Khartoum, Sept. 27, 1902.

A very considerable immigration of Golden Orioles occurs at Khartoum at the beginning of September, when the lime- and fig-trees are full of them, mostly immature birds. After this they pass on, and are comparatively scarce until March and April, up to the end of which month they are abundant again. I have never heard them utter their beautiful flute-like notes in their winter-quarters.

From Halfa in the north their migration follows the Nile Valley up to Uganda. Gedaref is the most easterly point at which I have observed it.

54. BUPHAGA ERYTHRORHYNCHA (Stanl.).

When creeping up to buffaloes in thick bush, at Jebel Ahmed Aga on the White Nile, I have often heard the sharp alarm-note of this species, and occasionally seen it. Except in this one locality, I do not remember having met with it.

55. LAMPROTORNIS PORPHYROPTERUS Rüpp.

a. ♂. Fachi Shoya, White Nile, Nov. 14, 1902.
b. ♀. River Rahad, April 6, 1901.
c. ♂. Roseires, May 11, 1904.
d. ♂. „ June 18, 1904.

Purple-winged Glossy Starlings are common on the Upper Blue Nile and its tributaries, on the Abyssinian frontier, on the well-wooded parts of the White Nile and Bahr-el-Ghazal, and in Kordofan.

I must confess to being rather puzzled as to the short-tailed and long-tailed forms (*L. porphyropterus* and *L. æneocephalus*) into which this species has been divided. Mr. Ogilvie-Grant ('Ibis,' 1902, p. 402) seems to distinguish them principally by the tails, giving measurements, among which 6·1 inches is the maximum for *L. porphyropterus*, and 8·35 inches for *L. æneocephalus*.

My difficulty is that these measurements do not seem to me representative, and I am sure that the collection of a long series would furnish larger measurements for both forms—in the case of *L. æneocephalus* very much so.

One of my Roseires skins (a male) has the central rectrices 7·8 inches long, *i. e.* well within the dimensions given for *L. æneocephalus*. But near El Obeid, in Kordofan, I saw some birds with tails so very much longer—undoubtedly the true *L. æneocephalus*—that I hesitate to ascribe my Blue or White Nile birds to the same form, and should call them *L. porphyropterus*.

Unfortunately I have no skins of these very long-tailed Kordofan birds. I was travelling hard at the time, and only shot one with a length of tail which particularly attracted my attention. This was an adult male, in moult, with the head covered with quills, and I did not skin it. One of the central rectrices had been shed; the other I pulled out and measured, but subsequently lost. Its length was exactly 11 inches; thus it exceeded the maximum length given by Mr. Ogilvie-Grant for *L. æneocephalus* by more than that, in turn, exceeds his measurements for *L. porphyropterus*!

56. Lamprocolius chalybeus (Ehr.).

a & *b*. ♂ ♀. Between Doka and the Atbara, April 26, 1903.

c & *d*. ♂ ♂. Jebel Melbis, Kordofan, April 14, 1904.

This handsome rifle-green Glossy Starling is more or less abundant south of the 14th degree of N. lat., wherever the country is fairly well wooded. I have seen it as far east as the Setit, and as far west as Mazrub in Kordofan.

These birds are gregarious throughout the year, breeding in colonies. On the Setit, in April, they were repairing their old nests, which were bulky structures of sticks, placed in the tops of "heglik" trees. Several nests were often built together into one great mass.

57. Spreo pulcher (P. L. S. Müll.).

a. ♀. Sebil, Blue Nile, March 30, 1903.

b. ♂. West of Omdurman, Jan. 2, 1902.

The Chestnut-bellied Glossy Starling is a common bird between about the 12th and 18th degrees of N. lat. It is first met with along the Desert-railway from the Atbara to Khartoum; eastwards it occurs on the Blue Nile and its tributaries, the Atbara, and the Setit; westwards I have seen it as far as Mazrub in Kordofan. I am not sure how far up it follows the White Nile, but I do not remember seeing it at Fashoda or further south.

I have not found eggs or young, but the old nests, built of sticks and placed in low thorn-trees, are very conspicuous objects in the desert-scrub. Being well protected by the thorns among which they are built, they last in the dry climate for many years, and the abundance of these old nests gives one at first a very exaggerated idea of the quantities of Starlings necessary to build them.

These birds are generally met with in rather small flocks; I never saw them in such large assemblies as *Lamprocolius chalybeus*. They feed principally on the ground; their note is a harsh "kree"; the whitish colour on the primaries is conspicuous in flight.

58. Corvus scapulatus (Daud.).

The handsome White-bellied Crow is the commonest bird of its family in the country. Roughly speaking, it occurs throughout the Soudan from Abu Hamed on the Nile to Meshra-el-Rek in the Bahr-el-Ghazal, and from the Kassala district across to Western Kordofan. It generally keeps much more within reach of water than the Brown-necked Raven. It seems to be migratory to the extent of moving in the rains from the black cotton-soil districts, such as Gedaref, to the sandy or gravelly tracts. This is apparently because the tenacious cotton-soil mud balls on its feet in wet weather. It keeps closely to a favourite haunt: for example, there are always a few pairs at Halfaia (opposite Khartoum), though in Khartoum itself I have never seen a specimen during four years' residence. At Kamlin on the Blue Nile many hundreds come to roost in a grove of date-palms.

I have not taken the eggs, but have seen the nests with sitting birds from February to May.

59. Corvus umbrinus Sundev.

a. ♂. Khartoum, Nov. 6, 1902.

The Brown-necked Raven is common on the sandy and gravelly deserts of the Northern and Western Soudan, but is scarce in the cotton-soil country.

Along the Desert-railway from Halfa to Khartoum it is always to be seen; it is abundant behind Khartoum, attracted by garbage from the town; and it is constantly met with on the deserts and Jebels of Kordofan.

I did not see it once on the Dinder, Rahad, Atbara, or Setit Rivers (March to May 1904).

60. Corvus capensis Licht.

I have only noticed the African Rook between Kaka and Fashoda, the district in which Mr. Hawker met with it.

61. Dicrurus afer (Licht.).

This Drongo is a fairly common bird on the Upper Blue Nile and its tributaries, on the Atbara and Setit, and on the more thickly wooded parts of the White Nile. Its habits resemble those of the allied species.

62. Prionops poliocephalus (Stanl.).

a. ♂. Gallabat, April 15, 1903.

This Helmeted Shrike is usually met with in parties of five or six, which follow each other closely through the bush. It does not seem common. I have met with it on the White Nile near Jebel Ahmed Aga, and near Gallabat in the Kassala Province.

63. Fiscus excubitorius (Des Murs).

a. ♀. Bahr-el-Ghazal, March 6, 1902.

I first met with the Long-tailed Grey Shrike at Kaka in February 1902. There it was comparatively scarce, but in March I found it very abundant in the "ambatch" cover along the Bahr-el-Ghazal and Jur Rivers. I have seen it nowhere else.

I do not think that this Shrike can be correctly retained in the genus *Lanius*. Its habits are so very different. It is highly gregarious, being almost always found in parties; and these are not pairs of old birds accompanied by their last brood, but companies of as many as twelve or fifteen individuals. I have seen them dancing about all over a tree, jerking their tails and flirting their wings, more like Babblers than true Shrikes of the typical genus.

64. Lanius leuconotus Brehm.

a. ♂. Khartoum, Feb. 6, 1901.

This conspicuous Shrike is fairly common and of wide distribution. I find from my notes that I met with it almost daily between Sept. 7th and May 11th, from the Setit across to Western Kordofan, and up the White Nile as far as the Sobat Junction. During the remaining months of the year I have generally been away, but, as it was not to be seen at Khartoum just before the first week in September, and then became suddenly abundant, I had formed the idea that it was a migrant, and did not breed in the country. However, on March 31st, 1904, at the Mazrub Wells in Western Kordofan, I came on two bob-tailed young birds sitting on a thorn "zariba," and watched the parents feeding them for some time.

This Shrike is quite at home in any desert where there are thorn-bushes for it to settle on, and along stretches of fifty and seventy miles without water I have noticed it the whole way.

65. Lanius nubicus Licht.

a. ♂. Fedassi, Blue Nile, April 2, 1901.
b. ♂ jr. Khartoum, Oct. 20, 1902.
c. ♂. Jebel Ain, White Nile, Nov. 15, 1902.

The Nubian Shrike is fairly common. It appears to be partly resident and partly migratory. It is comparatively seldom seen in the hot weather, the majority travelling down the Nile to Egypt in February and March. I have not found a nest, but it breeds here in the winter. My Khartoum specimen, shot on Oct. 20th, is very young, and Messrs. Rothschild and Wollaston noticed young birds at Shendi in February and March. With habits very like those of the Woodchat, it is a great frequenter of gardens and groves of shady trees, and is much more often found in these than in the open bush.

At a recent garden-party at the Palace, Khartoum, one of these little Shrikes created considerable amusement. Round the marquee where refreshments and materials for smoking were provided, a good many bright pink matches were littered about on the turf, and these the birds evidently took for worms, fluttering down and hovering over one after the other, perfectly regardless of the crowd.

66. Lanius collurio Linn.

The Red-backed Shrike is common in winter, arriving at Khartoum at the beginning of September. Immature birds far outnumber the adults.

67. Lanius paradoxus Brehm.

a. ♀. Kamlin, Blue Nile, March 3, 1901.

Scarce. A few examples of Brehm's Woodchat-Shrike may generally be noticed in the gardens and cultivated spots at Khartoum at the end of August or beginning of September, while between this and March I have occasionally seen it on the White and Blue Niles.

Lanius isabellinus Hempr. & Ehr. I do not think I have come across.

68. Nilaus afer (Lath.).

a. ♀. 20 miles west of Omdurman, Jan. 1, 1903.
b. ♂. „ „ „ Jan. 2, 1903.
c. ♂. Jebel Melbis, Kordofan, April 16, 1904.

Nowhere abundant, but I have come across it singly or in pairs along the White Nile generally, and as far west as El Obeid in Kordofan.

This Bush-Shrike is a bird of unobtrusive habits, and spends most of its time quietly searching branches and foliage for its insect-food. In its actions it reminds me very much of the genus *Tephrodornis.* Its note is a clear and somewhat ventriloquistic whistle.

69. Laniarius æthiopicus (Gm.).

a. ♀. Gallabat, May 7, 1901.

I have only met with the Abyssinian Pied Bush-Shrike in the khor which runs from Gallabat to the Atbara, where in May 1901, and again in May 1903, I found it fairly common.

70. Laniarius erythrogaster (Rüpp.).

a. ♀. Gallabat, May 6, 1901.

This very handsome scarlet-and-black Bush-Shrike is widely distributed in the Soudan. It is a common bird on the Blue Nile, Rahad, Dinder, Setit, and Atbara Rivers; on the White Nile and Bahr-el-Ghazal; and also in Western Kordofan. It has a fine clear whistle, something like an Oriole's, generally uttered from a dense thorn-bush.

71. Malaconotus poliocephalus (Licht.).

a. ♂. Gallabat, May 7, 1901.

The only specimen which I have come across.

72. Telephonus remigialis Finsch & Hartl.

a. ♂. Wad Medani, Blue Nile, April 3, 1901.

The Red-winged Bush-Shrike seems common throughout the country, excepting in the swamps of the Upper Nile. It is met with far from water in the thorn-scrub on the western sand-regions. Its note is a long-drawn piping whistle; the birds are nearly always in pairs, and they have a pretty trick of fluttering straight up into the air from a bush and then parachuting down into it again.

73. ARGYA ACACIÆ (Licht.).

Lichtenstein's Desert-Babbler is common wherever there are scrubby thorn-bushes on sandy desert from Halfa southwards to the White Nile, and from Wad Medani on the Blue Nile across to Western Kordofan. Except when nesting, it is always in small parties of six to eight, with the regular habits of the Babblers of the "Seven Sisters" group.

74. CRATEROPUS LEUCOCEPHALUS (Rüpp.).

a. ♀. Gallabat, May 7, 1901.

I have met with the White-headed Babbling-Thrush on the Setit and Upper Atbara, on the Upper Blue Nile and its tributaries, and on the White Nile to a little further up than Duem. It is generally in parties of a dozen or so, and is a common species. I have often wished that it was less abundant, for no sooner do a party detect an intruder than they take upon themselves to warn every living thing in the neighbourhood of his presence, following him about persistently with a noise like a policeman's rattle!

75. CRATEROPUS CORDOFANICUS, sp. n. (Plate VII.)

a. ♂. Jebel Melbis, Kordofan, April 16, 1904.

After carefully comparing this specimen with all the skins of the genus *Crateropus* in the British Museum, I venture to describe it as a new species—a view in which Dr. Sharpe concurs. Its nearest ally is *C. plebeius* (Rüpp.), from which it may readily be distinguished by its smaller size and paler coloration, by having the feathers of the throat and breast tipped with white, and by the flanks and under tail-coverts being buff-coloured. Measurements of the type specimen (♀):—Length 222 mm.; wing 108; tail 106; tarsus 28; culmen 17. Bill black; legs and feet dusky brown.

I found this bird quite common along the "khor" which runs from Jebel Melbis towards El Obeid. Its habits are the same as those of *Crateropus leucocephalus*, the place of which it takes in this locality. I shot two specimens, but only preserved one of them, not attaching any importance to the bird at the time, since it seemed so common.

I did not meet with it anywhere else.

76. Pycnonotus arsinoë (Hempr. & Ehr.).

a. ♂. Khartoum, Feb. 1903.

This Bulbul is a tame and cheery bird, frequently entering houses and evincing little fear of man. It is common and generally distributed in all the provinces.

At Khartoum it breeds in gardens, principally in the months of March and April.

77. Eremomela griseoflava Heugl.

a. ♀. Bara, Kordofan, April 27, 1904.
b. ♀. " " " "
c. ♀. Um Bosha, Kordofan, May 25, 1904.

I found the Grey-and-Yellow Warbler common in the bush in the red-sand country of Kordofan, noting it everywhere from Hashaba to El Obeid, and north to Bara. It associated in pairs or small parties of seven or eight, and strongly reminded me of a *Sylviella* in appearance, though it is less of a Creeper in habits. It is particularly partial to the bushes of the "Sodom Apple" (*Calotropis procera*).

78. Camaroptera brevicaudata Rüpp.

a. ♂? Tewfikia, White Nile, April 1902.
b. ♀. Jebel Melbis, Kordofan, April 16, 1904.

The Green-backed Bush-Warbler, though nowhere very plentiful, is widely distributed. I have seen it at Gallabat and on the Setit, on the White Nile, and in Kordofan. It is generally noticed creeping about zaribas and thorn-thickets.

79. Sylviella brachyura Lafr.

a. ♂? Near Gallabat, May 1901.
b. ♀. Tewfikia, Feb. 28, 1902.

The Cinnamon-throated Bush-Warbler is a fairly common and widely distributed little bird. I have met with it almost everywhere from the Setit to the Bahr-el-Ghazal. Its round wings, short tail, manner of flight and of creeping about trees, all forcibly reminded me of a Nuthatch. "Nuthatch-Warbler" would be a good English equivalent for the name of the genus.

80. Phyllolais pulchella (Rüpp.).

a. ♂. Tewfikia, March 1902.

The Beautiful Bush-Warbler was common in the neighbourhood of Fashoda and Tewfikia at the time that I shot my specimen.

81. Prinia murina (Heugl.).

a. ♂. Tewfikia, White Nile, March 1902.

The Tawny-flanked Grass-Warbler seemed extremely common at Kaka and Tewfikia when I was there in February and March 1902.

82. Prinia mystacea (Rüpp.).

a. ♂? Gedaref, June 1901.

This was the common Grass-Warbler at Gedaref when I was there in April and May 1901.

83. Burnesia gracilis (Rüpp.).

The Graceful Grass-Warbler is abundant in scrub and cultivated ground near Khartoum and north of it in the winter and spring, breeding in February and March.

84. Spiloptila clamans (Temm.).

a. ♂. Mesjid, Blue Nile, March 3, 1901.

b. ♀. Khartoum, Nov. 8, 1902.

These exceedingly pretty little Warblers are plentiful in scrub near Khartoum and along the Nile north of it, on the White and Blue Niles, where the country inland is sandy desert, and in Kordofan between Duem and El Obeid. They are usually met with in little parties of five or six, and are most restless and active birds, always in motion, and perpetually jerking their long tails up and down or from side to side.

85. Cisticola cisticola (Temm.).

a. ♂. Kawa, Nov. 13, 1902.

Common and widely distributed, apparently breeding from

November to March. It is most abundant in the winter and early spring months. In 1902 large numbers appeared in the cultivated spots round Khartoum on October 10th. A few days earlier I might have searched in vain for a single specimen.

Cisticola aridula Witherby (Ibis, 1901, p. 256) I have so far failed to obtain.

86. Cisticola marginalis (Heugl.).

a. ♂. Fashoda, Feb. 6, 1902.

Common in high grass along the river and khors at Fashoda. It is a shy little bird, disappearing into the grass the instant it settles, after the manner of a *Locustella.*

The species is distinguishable from its near ally, *C. erythrogenys* Heugl., by having the upper tail-coverts unspotted buff.

87. Cisticola ruficeps (Rüpp.).

a. ♂. Gedaref, June 1901.
b. ♂. „ „ „
c. ♂. Tewfikia, April 1902.
d. ♀. Jebel Melbis, April 14, 1904.

The Red-capped Fantail-Warbler seems to be widely distributed. I have met with it on the Blue Nile and its tributaries, on the Atbara and the Setit, round Gallabat and Gedaref, on the White Nile, and near El Obeid in Kordofan. My specimen from the last locality (now in the British Museum) is considerably paler than others from the dark cotton-soil districts, or than any of the series in the British Museum. This may perhaps be due to bleaching or abrasion; but though the difference in colour is slight, I am inclined to think that other specimens from the western sandy regions will be found to shew it too. In habits this is rather a pleasing little bird; it often comes close to a tent to investigate it, hopping actively about on the ground, and when followed flitting from bush to bush instead of taking refuge in the grass.

88. Cercotrichas podobe (P. L. S. Müll.).

a. ♂. Jebel Ain, Nov. 15, 1902.

The Black Bush-Robin is a common bird of the acacia-scrub. It is a pleasing and active little bird, looking something like a Blackbird in miniature as it hops about on the ground with its tail raised, and is a cheery and persistent songster. In flight the brown on the primaries and the white spots on the expanded tail are conspicuous. It is almost always found in pairs. It ranges at least as far north as the Atbara, all up the Blue Nile and across to the Setit, and westwards right through Kordofan. I do not know whether it reaches further south than Kaka or Fashoda on the White Nile.

I took two clutches, of two and three eggs, on the Setit on May 6th and 12th, 1903. The nests were like Robin's, and placed in crevices in tree-trunks.

89. Acrocephalus turdoides (Meyer).

The Great Reed-Warbler seems to pass through the country southwards in September. In that month I have seen it on three or four occasions in reed-beds on the White Nile and in "dhurra" crops at Khartoum. I should call it a rare bird in the Soudan.

90. Acrocephalus streperus (Vieill.).

a. ♂? Kamlin, Blue Nile, March 1901.

The Common Reed-Warbler is a fairly abundant species in the winter and spring. I have shot it as far east as Gallabat and as far west as El Obeid in Kordofan.

91. Acrocephalus phragmitis (Bechst.).

The Sedge-Warbler is occasionally, but rarely, met with in the winter. On two occasions I have been able to watch the bird through glasses in gardens at Khartoum, and I am pretty sure of the identification, though I have not shot specimens.

92. Hypolais pallida (Hempr. & Ehr.).

a. ♂. Khartoum, Nov. 11, 1902.
b. ♂. ,, Feb. 10, 1902.
c. ♀. Gedaref, May 1, 1901.

Quite the most abundant of the migratory Warblers in winter and spring.

93. Phylloscopus rufus (Bechst.).

a. ♀. Khartoum, Nov. 8, 1902.
b. ♀. „ Nov. 10, 1902.
c. ♀. Kawa, White Nile, Nov. 13, 1902.

The Chiffchaff is abundant in gardens at Khartoum in the winter. Both Mr. Hawker and Mr. Witherby seem to think it scarce. I can only account for this by the fact that it keeps principally to gardens, while these gentlemen were collecting mostly in the bush. Being one of the earliest birds to return north, it had probably become very scarce during the latter months in which they were collecting.

Both the large and small races of this bird winter here, the latter being much the most plentiful. My specimen *c* belongs to the large form.

94. Sylvia atricapilla (Linn.).

a. ♂. Khartoum, Oct. 15, 1902.

The Blackcap is occasionally met with in gardens at Khartoum in the winter. My specimen was taken from the claws of a Lanner Falcon.

95. Sylvia orphea Temm.

The Orphean Warbler is common during winter in scrub along the Nile north of Khartoum. When seen closely enough it can be distinguished from the last species by the white on the outer tail-feathers; but I have often seen black-headed Warblers without being able to ascertain to which species they belonged.

96. Sylvia hortensis Bechst.

Garden-Warblers were not uncommon at Khartoum in September and October 1902. I shot one with an air-gun on October 20th of that year, but it was too much damaged to preserve. In the other years which I have spent here it has seemed much rarer.

97. Sylvia rueppelli Temm.

a. ♀. 20 miles west of Omdurman, Jan. 1, 1903.

Rüppell's Warbler is scarce. I have met with it on the

Nile at the Shabluka Cataract and in scrub in the desert west of Omdurman twenty miles from water.

98. Sylvia curruca (Linn.).

The Lesser Whitethroat is, next to *Hypolais pallida*, the commonest of our migratory Warblers. It remains with us until the end of May.

99. Aëdon galactodes (Temm.).

a. ♀. Gedaref, April 26, 1901.
b. ♂. R. Rahad, May 22, 1903.

The Rufous Warbler is a fairly common and generally distributed bird in the winter and spring. I have seen it as far east as the Setit and in Western Kordofan. Its numbers are conspicuously increased at the time of the northward migration in March. Whether any remain to breed in the Soudan I do not know, but I have seen it as late as the beginning of June.

100. Cossypha heuglini Hartl.

a. ♂? Bahr-el-Ghazal, March 1, 1902.

I have only met with this bird in the thorn-forests of the Bahr-el-Ghazal, where I saw it fairly often.

101. Pratincola rubetra (Linn.).

The Whinchat is a rare winter visitor. I noted it at Khartoum on September 7, 1901, and on several following days. I shot an example on February 2, 1903, but I accidentally trod on the bird while searching for it in a tall bean-crop, and thus spoilt it for skinning.

102. Pratincola rubicola (Linn.).

a. ♂. Khartoum, Feb. 10, 1902.
b. ♂. ,, Dec. 28, 1902.

The Stonechat is a scarce winter visitor. I have only met with it in the bean-fields and other cultivated places round Khartoum, and by no means frequently.

103. Ruticilla phœnicurus (Linn.).

a. ♂. Khartoum, Nov. 20, 1902.

The Redstart is common between September and March, and I have seen it in its winter plumage from Gedaref to Kordofan, and south to the Bahr-el-Ghazal. In its habits it is a more shy and less conspicuous bird here than when in its northern breeding-grounds.

104. Lusciola golzi (Cab.).

a. ♂. Khartoum, Sept. 1901.

Persian Nightingales arrive at Khartoum in considerable numbers in September, but, after resting for a week or two in the lime-gardens, continue their journey south, and do not reappear until they pass through again in the spring. At the time of their actual arrival I have usually been absent on leave, but on my return to Khartoum on Sept. 17th, 1901, Sept. 12th, 1902, and Sept. 5th, 1904, they were to be found in every garden in the town. They are exceedingly tame birds, keeping principally to the ground, and hopping away under cover rather than flying when approached. They have a harsh "churring" alarm-note. Judging from the number of their feathers seen lying about, they fall very frequent victims to cats.

105. Cyanecula suecica (Linn.).

a. ♀. Kaka, Feb. 24, 1902.

In February 1902 I noticed a considerable number of Blue-throated Warblers frequenting the high grass in a swampy khor at Kaka on the White Nile. I also noted the bird at Khartoum on the 14th of September, 1901. It is in the irrigated land of Egypt that the main body of these migrants pass the winter, and in the Soudan they are, comparatively speaking, only stragglers.

106. Turdus torquatus Linn.

a. ♂. Khartoum, Dec. 4, 1902.

This example was shot on the green grass at the edge of the subsiding Nile. This is the only occasion that I have seen the Ring-Ousel in the Soudan, and Captain Shelley tells me that my specimen is the only one which has ever been obtained within the Ethiopian Region, *i. e.*, south of the Tropic of Cancer.

107. Turdus pelios Bp.

a. ♂? Gallabat, May 6, 1901.

b. ♂. ,, April 20, 1903.

I found the Ethiopian Thrush fairly common at Gallabat on the Abyssinian frontier in May 1901, and on the Upper

Blue Nile, the Atbara above the Setit Junction, and the Setit River in March, April, and May 1903. It is a quiet unobtrusive bird, generally found searching for food among fallen leaves in shady khors and thickets. Except in these eastern parts of the Soudan, I have never met with it.

108. Monticola cyanus (Linn.).

a. ♀. Khartoum, Oct. 7, 1902.
b. ♀. ,, Feb. 18, 1903.

The Blue Rock-Thrush is a fairly common winter visitor to the northern part of the Soudan. From the end of September to March a few may always be found in Khartoum frequenting buildings, brickfields, old mud-ruins, &c. It also haunts the rocky hills in the deserts. Nearly all the examples which I have seen have been immature.

109. Monticola saxatilis (Linn.).

a. ♂. Khartoum, Oct. 7, 1902.

My remarks on *M. cyanus* apply equally to this species.

110. Saxicola œnanthe (Linn.).

a. ♀. Gedaref, April 27, 1901.
b. ♂. Fachi Shoya, White Nile, Nov. 14, 1902.

The Common Wheatear is generally distributed throughout the Soudan in the cold season. It seems equally at home in the bush, in the desert, or in the streets of Khartoum.

111. Saxicola melanoleuca (Güld.).

a. ♂. Khartoum, March 18. 1901.
b. ♀? Fachi Shoya, Nov. 14, 1902.
c. ♂. Khartoum, Feb. 21, 1903.

The Eastern Black-throated Wheatear is comparatively scarce, but I see several every winter. February, March, and April seem to be the months in which it is most often met with. At this season there are generally a few frequenting the mud-ruins at the back of Khartoum. My specimen from Fachi Shoya is in full male plumage, but appeared on dissection to be a female.

112. Saxicola pleschanka (Lepech.).

a. ♂. Khartoum, Oct. 24, 1902.
b. ♀. Kawa, White Nile, Nov. 16, 1902.

This Wheatear seems to be most often seen during the months of October and November, February and March. At these seasons a few are always to be seen about the streets and gardens of Khartoum. In March 1903 I found it more abundant on the Blue Nile than I have seen it anywhere since.

113. Saxicola aurita Temm.

a. ♂. Khartoum, Feb. 21, 1903.

Another rather uncommon Wheatear, most in evidence in the spring months.

114. Saxicola isabellina Cretzschm.

a. ♂. Assouan, Feb. 26, 1901.
b. ♂. Khartoum, Feb. 7, 1902.

The Isabelline Wheatear is not uncommon on the sandy desert near Khartoum and north of it, and on the Blue Nile. On the White Nile I have not seen it further south than Duem.

115. Saxicola deserti Temm.

a. ♂. Assouan, Feb. 27, 1901.
b. ♂. Khartoum, Feb. 5, 1902.
c. ♂. „ Nov. 26, 1902.
d. ♂. „ Dec. 28, 1902.
e. ♀. „ Feb. 1903.
f. ♂. „ Oct. 1904.

(Specimens *a* and *d* have buff edgings on the black throat-feathers. The others are in full plumage.)

The Desert-Wheatear is quite the commonest and most widely distributed bird of this family in the Soudan, and is found wherever the country is fairly open. It is a familiar bird in the streets of Khartoum.

Females seem curiously scarce compared with males.

116. Saxicola heuglini Finsch & Hartl.

a. ♂. Gedaref, May 27, 1901.
b. ♀. „ May 30, 1901.

Heuglin's Wheatear is a bird of the dark cotton-soil country. I have met with it on the Upper Blue Nile, at Gedaref and Gallabat, and on the White Nile near Fashoda. It is generally very much tamer than the other Wheatears.

The striking black-and-white *Saxicola leucopygia* Brehm, which is so noticeable along the rocky banks of the Nile between Assouan and Wadi Halfa, does not appear to extend south of that station.

117. MELÆNORNIS EDOLIOIDES (Swainson).

a. ♀. Gallabat, May 8, 1901.

I met with this species singly or in pairs in the khor at Gallabat. Its habits seemed to be something like those of the small Drongos and the more sluggish Flycatchers.

My specimen was identified by Dr. Hartert. I notice that Shelley (Birds of Afr. i. p. 93) gives W. Africa for *M. edolioides*, and N.-E. Africa for *M. pammelæna* (Stanl.).

118. BRADYORNIS PALLIDUS (v. Müll.).

a. ♀? Tewfikia, White Nile, April 1902.

I saw this bird, which very closely resembles a Garden-Warbler, a few times on the White Nile in the spring of 1902. One of them kept returning to the same perch, much after the manner of a Flycatcher.

119. MUSCICAPA GRISOLA Linn.

The Spotted Flycatcher arrives at Khartoum in large numbers in the autumn, but after a week or two entirely disappears, passing on further south. Its return passage in the spring is, for some reason, much less noticeable. I have not been able to note the date of the autumn arrival exactly, but the bird was abundant when I returned from leave on Sept. 13th, 1901, and by Sept. 17th, 1902. In both of these years it suddenly vanished again during the second week in October.

120. MUSCICAPA ATRICAPILLA Linn.

a. ♀. Tewfikia, White Nile, April 1902.

The Pied Flycatcher, like the Spotted, passes through Khartoum in the autumn, and again in the spring, but is rare compared with the latter species. The great majority are young birds; in fact, I have only seen five or six old males in black-and-white plumage altogether.

121. Batis orientalis Heugl.

a. ♀. Bahr-el-Ghazal, March 1904.
b. ♂. Jebel Melbis, April 16, 1904.
c. ♀. ,, ,, ,, ,,
d. ♂. Roseires, May 28, 1904.
e. ♀. ,, ,, ,,

Widely distributed in the Soudan where there is thorn-jungle. I have noticed it on the Blue Nile and its tributaries, on the Atbara and Setit, on the White Nile and Bahr-el-Ghazal, and in Kordofan near El Obeid.

In habits this Flycatcher much resembles the little Pied Shrikes of the genus *Hemipus*. It is almost always in pairs, and appears to be of a very affectionate disposition. If one is shot the survivor flutters down to it in most pitiful distress.

According to my dissections, it is certainly the males which have black and the females maroon pectoral belts.

122. Terpsiphone cristata (Gm.).

a. ♂. Roseires, May 26, 1904.

I have only met with the Paradise Flycatcher, in the chestnut plumage, at Gallabat (May 1901 and May 1903) and on the Bahr-el-Ghazal (March 1902).

My specimen, a beautiful white adult male, was obtained for me by Mr. G. B. Middleton.

123. Hirundo rustica Linn.

An abundant cold-weather migrant, but I have never known it to breed in the Soudan. I have sometimes seen it skimming over sandy desert ten or more miles from water.

124. Hirundo æthiopica Blanf.

a. ♀. Gedaref, April 1901.

This is our commonest resident Swallow. I have met with it everywhere I have travelled, from the Abyssinian frontier on the east to the Bahr-el-Ghazal and Kordofan. It is just as tame and domestic in its habits as *Hirundo rustica* in England, breeding fearlessly in occupied rooms and offices.

I suspect that Mr. Witherby's informant, who told him that the Common Swallow bred regularly in the Medical Officers' quarters at Omdurman, mistook this species for it. At out-stations, away from the rivers, these birds start nesting as soon as the first heavy showers of the rains enable them to obtain wet mud for the purpose. I find the following note in a diary of mine:—

"Gedaref, June 4th, 1901. Rain at last—torrents of it all night. The eight Swallows which inhabit my room took prompt advantage of the muddy pools which it had formed all round, and commenced nest-building as soon as they woke up. By eight o'clock there were four nests under way, where yesterday there was not one!"

125. Hirundo smithi Leach.

The beautiful Wire-tailed Swallow is, generally speaking, decidedly uncommon. It is a water-loving bird, and the absence of bridges and culverts, under which it usually nests, confines it principally to those portions of the rivers which are rocky. I have seen it at, and north of, Khartoum, but never south on the White Nile. On the rocky Setit and the upper portions of the Atbara, and on the Rahad and Dinder Rivers, it is tolerably numerous. In these localities I have found its nests placed against rocks, just above water-level, and seen old birds accompanied by their young in March and April.

126. Hirundo senegalensis Linn.

a. ○. Jebel Melbis, Kordofan, April 15, 1904.
b. ○. ,, ,, ,, April 18, 1904.

These Swallows were frequenting the tallest "Baobab" trees when I came across them. They were usually in pairs or small parties. They have a steady circling flight, and continually utter a single rather deep note.

I have also noticed Rufous-backed Swallows at Gallabat and on the Bahr-el-Ghazal, but I am not sure of the species; I am inclined to think that they were *Hirundo rufula*.

127. Hirundo urbica (Linn.).

The House-Martin seems quite a rare straggler to this part of Africa. I only noted it a few times in the autumn of 1901, when I saw three or four together at Khartoum on September 15th and October 26th and 27th, while Messrs. Hawker, Witherby, Rothschild, and Wollaston do not seem to have met with it at all.

128. Cotile riparia (Linn.).

Sand-Martins are more or less abundant on the rivers between September and March. Often a "rise" of tiny May-flies will cause them to assemble on the White Nile at Khartoum in great numbers; at other times one hardly sees any.

129. Cotile minor Cab.

The Lesser Sand-Martin seems fairly numerous, associating with the last species. When both are plentiful it is, of course, difficult to judge in what proportion the species are mingled. This bird breeds here, boring its nest-holes in the soft soil of the Nile banks. I have noticed it thus engaged in October and November. The colonies which I have seen have been very small, consisting of only three or four pairs of birds, and twice I have found a single pair breeding by themselves.

130. Cotile shelleyi Sharpe.

a. ♀. Khartoum, Dec. 26, 1902.
b. ♀? " " "

These little Martins were abundant at the time when I obtained my specimens. Hundreds of them were hawking over a crop of dhurra. Their small size attracted my attention, and I managed to kill four of them with a catapult —a very useful collecting-weapon, by the way, but one with which I am not so proficient as in my younger days! I had probably overlooked the species among other Sand-Martins on former occasions.

131. PTYONOPROGNE RUPESTRIS (Scop.).

I have only seen this Cliff-Swallow on a few occasions, frequenting the rocky hills of the Shabluka Cataract, and always singly.

Ptyonoprogne obsoleta, so common about the temples on the Nile north of Wadi Halfa, I have not seen within the limits of the Soudan.

132. CYPSELUS APUS (Linn.).

Flocks of the Common Swift may be met with anywhere in the Soudan during the winter months. I have noted them from September 7th to May 30th.

133. CYPSELUS AFFINIS Hardw.

a. ♂. Gedaref, May 25, 1901.

My specimen was shot from a number which were flying in company with *C. apus.* This is the only time that I have met with the bird in the Soudan.

134. TACHORNIS PARVUS (Licht.).

The Little Palm-Swift is abundant wherever the "Deleb" (*Borassus*) palms, in which it breeds, are found.

135. CAPRIMULGUS EUROPÆUS Linn.

a. ♂. Khartoum, Oct. 27, 1902.

The Common Nightjar is abundant about Khartoum in September and October, after which, as is the case with so many of the winter migrants, the great majority pass on further south, repassing in the spring.

136. CAPRIMULGUS EXIMIUS Temm.

a. ♂. Shendi, March 21, 1901.

I owe my first introduction to this beautiful Nightjar to Messrs. N. C. Rothschild and Wollaston, who pointed out to me the right sort of ground on which to look for it, and thus helped me to shoot my specimen near their camp at Shendi. In addition to obtaining a splendid series of skins, these gentlemen were successful in finding the eggs of this species, and their account of its habits leaves little to be added.

This Nightjar will probably prove to be widely distributed in the Soudan where the soil is of red or yellowish sand or gravel, with sufficient grass and scrub to afford some cover. Mr. Witherby obtained it at Wad Mariun on the White Nile, Messrs. Rothschild and Wollaston at Shendi, and I have met with it near Kamlin on the Blue Nile (April 1st, 1901); twenty miles west of Omdurman (Jan. 2nd, 1903); and at Jebel Shuwei, in Kordofan, a hill about thirty-six miles inland from El Duem on the White Nile (May 10th, 1904). It also occurs on the Atbara. On the red-sand tracts of Western Kordofan I frequently saw Nightjars in the evening, when it was too dark to identify them, and when I was carrying only a rifle; they may have been of this species.

137. Caprimulgus ægyptius Licht.

a. ♂. Khartoum, Dec. 10, 1902.
b. ♀. Bahr-el-Homar, March 1902.

I have met with the Egyptian Nightjar from Shendi, along the White Nile, to the junction of the Bahr-el-Homar with the Bahr-el-Ghazal; and on the Blue Nile between Khartoum and Medani.

At Khartoum in the winter months it may generally be found during the day resting among old brick-rubble and mud-ruins, six or seven birds often being in close company. By April these birds seem to leave the vicinity of the town to breed.

138. Macrodipteryx longipennis (Shaw).

a. ♂. Gedaref, May 28, 1901.
b. ♀. ,, ,, ,,
c. ♂. Roseires, May 28, 1904.

The splendid Standard-winged Nightjar occurs right across the Soudan from the Upper Blue Nile and Upper Atbara to the White Nile and Bahr-el-Ghazal, but I have only met with it south of the 14th degree of N. latitude. Though, on the whole, an uncommon bird, it is in places fairly plentiful. Water is essential to it, and it is locally migratory to the extent of spreading in the rainy season to localities where pools are then found in khors which are dry in the hot months. At Gedaref, where the late Colonel Collinson, C.B., had told me that I should find it, I searched in vain until the last week in May, when the first showers left pools of standing water; then it suddenly arrived and became numerous. The birds used to appear every evening at sunset, drinking at, and hawking over, pools in the rocky khors. Passing close in the dusk they are strangely beautiful objects, the great webs behind fluttering about as they turn and twist in the air like two smaller birds following them.

This Nightjar has been figured by Mr. Gedge as resting on the ground with the "standard"-feathers vertically erect, the webs protectively imitating grass-heads or bulrushes—a mistake, in my opinion, perpetuated in Professor Newton's 'Dictionary of Birds,' p. 641. I do not believe that this is correct, or even possible. I have repeatedly, through glasses, watched the bird on the ground, both drinking at dusk and asleep during the day, and the long feathers were always straight out behind it, the bare shafts rising in a slight curve and the webs resting sideways on the ground. Mr. G. B. Middleton, in whose observations I have confidence, and whom I had particularly asked to observe the bird's resting-attitude, after two seasons at Roseires, where the bird is plentiful, confirms this. Lord Lovat ('Ibis,' 1900, p. 312) writes:—"When at rest the two elongate racquet-shaped quills were always extended beyond the tail, and the bird was never observed to erect them vertically above the back; indeed it seems *impossible that it should be able to do so.*" (The italics are mine.) I, too, consider that it is quite impossible. The long feathers are no more independently movable than any of the other primaries, indeed, being thicker at the base, their attachment to the bone is even more rigid. For about a quarter of an inch from their base these feathers are tubular, and take the upward turn which causes them to stand above the other primaries. The quill is then half truncated, one side only being thickened, flattened, and produced, the termination of the tubular portion remaining open. All movements of the long shaft and web are entirely due to its elasticity as it is carried through the air. In a freshly killed bird it is quite impossible to erect these feathers vertically from the base except by forcibly bending the shaft. The long feathers seem to be purely sexual adornments of the male, and to have no mimetic purpose at all.

Captain Boyd Alexander ('Ibis,' 1902, p. 358), writing of this species on the Gold Coast, says: "The males in courting bring forward their long wing-pinions until they droop towards the hen." I am convinced that this is done by the whole wing being turned upwards and forwards until the higher setting of the racquet-feathers and the weight of the webs cause them to droop forwards as described, without their having any independent movement. In a letter replying to this suggestion, Captain Alexander seems to incline to the same opinion.

I have written at some length on this point, as this strange and beautiful Nightjar has always had a fascinating interest for me, and it is becoming common to see cited as instances of protective mimicry fancied resemblances which are, at least, calculated to raise a smile among field-naturalists.

The "standard" feathers of this bird are a favourite hair-ornament of the Shilluk warriors of the White Nile, and very fantastic the feathers look, bending and nodding over the heads of these naked six-foot-spearmen.

Mr. Hawker obtained an egg on the White Nile in May; while an officer of the Egyptian army told me that he had seen eggs at Roseires in October and November.

The measurements of my finest specimen may be worth recording: Length (to end of central rectrices) 223 mm.; wing 180; bill at gape 26; tail 95; tarsus 18; total length of standard quill 550; length of web of ditto 175; greatest breadth of web 72.

139. SCOTORNIS CLIMACURUS (Vieill.).

a. ♂. Kamlin, Blue Nile, March 31, 1901.

The beautiful little Long-tailed Nightjar seems to be the most abundant of the Caprimulgidæ in the Soudan. It is common as far north as Shendi, east to the Abyssinian frontier, and south to the Bahr-el-Ghazal. On the red-sand country of Western Kordofan I did not meet with it.

These Nightjars are particularly abundant just south of Jebel Ahmed Aga, on the White Nile, where at sunset I have watched them come streaming out of the bush across an open plain to the river in scores, if not hundreds. They generally keep to thick thorn-bush in the day, and are seldom met with on very open ground. Their habits are distinctly sociable, and I have often come on seven or eight resting in close company—frequently all male birds. Their note is a regular Nightjar's "churr."

There is something peculiarly moth-like about one of these birds as it rises silently at your feet in the shade, glides a few yards, shewing its richly marked wings, and drops again suddenly under a bush.

I took a pair of fresh eggs at Um Muttra Meila on June 8th, 1901, and another pair at Tewfikia on March 24th, 1902. At the latter place I found several hard-set eggs about the same time. On the White Nile these Nightjars were in full moult in November 1902, many being almost tailless.

With many opportunities for observation, I have never noticed that the "long tail-feathers are held apart at an angle of 25 or 30 degrees in flight," as described by Messrs. Rothschild and Wollaston. At any rate, I do not think that this is the case *as a rule*. Very few birds separate the *central* rectrices much in flight.

140. Eurystomus afer (Lath.).

a. ♀. Roseires, June 26, 1904.
b. ♀. „ June 11, 1904.
c. ♂. „ June 19, 1904.

My specimens of the African Broad-billed Roller were kindly collected for me by Mr. G. B. Middleton on the Upper Blue Nile. I have only once met with the bird myself, at Gallabat.

141. Coracias garrulus Linn.

a. ♂. Khartoum, Oct. 14, 1902.

The Common Roller arrives at Khartoum in considerable numbers during the first week of September, and is abundant along both Niles for the next two months, after which it is much less frequently seen. Its return migration in the spring is less noticeable.

142. Coracias abyssinicus Bodd.

a. ♂. Gedaref, May 1901.
b. ♂. Fachi Shoya, White Nile, Nov. 14, 1902.

The Abyssinian Long-tailed Roller seems very generally distributed throughout the whole country. From south of about the 17th degree of N. lat. I think that I have seen it everywhere that I have been, from east to west, and it ranges into Uganda.

Though resident, it seems locally migratory. From the vicinity of Khartoum, where it is common during the rest of the year, it seems to disappear entirely in August and September (just at the period when *Coracias garrulus* becomes plentiful in its haunts), returning suddenly about the middle of October.

143. Melittophagus pusillus (P. L. S. Müll.).

a. ♂. Khartoum, Oct. 28, 1902.
b. ♀. „ Nov. 19, 1902.
c. ♀. „ Feb. 1903.

This little Bee-eater is abundant at Khartoum, and its tameness and brilliant plumage soon attract the attention of visitors. I have found it common along the Blue Nile up to Wad Medani, and have seen it at Gedaref; on the White Nile I do not remember its occurrence beyond Fashoda, while I have not met with it further north than Shendi.

144. Melittophagus frenatus (Hartl.).

a. ♂. River Rahad, April 11, 1903.
b. ♂. „ „ „

These gorgeously coloured Bee-eaters are abundant on the Blue Nile above Wad Medani and all along the Rahad and Dinder Rivers. These last two rivers dry up into a chain of pools, often widely separated, during the hot months, and in the vicinity of the pools the Bee-eaters collect and breed in great numbers. In April 1903 many of the pools contained large fishes (probably *Hydrocyon*), which, being ravenous for want of food, were rising at these Bee-eaters every time that they skimmed over the surface of the water. It was a most curious, and, I should think, unusual sight. As a rule the birds were too quick for the fishes, and avoided them easily by shooting straight up into the air, but in half an hour's watching I saw two taken like flies within a few yards of me.

I came across many large breeding-colonies on the Rahad and the Dinder in the last week of March and the first fortnight of April, from which I obtained a good series of eggs.

145. MEROPS APIASTER Linn.

a & *b*. ♀ ♀. Gedaref, April 29, 1901.

The Common Bee-eater is an abundant cold-weather migrant, arriving in large flights at the end of August or beginning of September. A large proportion go further south, and after its first arrival the species becomes noticeably less plentiful until the return migration in spring, when very large gatherings are again met with. At Gedaref, in 1901, I noticed great numbers passing over on April 29th and the four following days, all travelling due west.

These Bee-eaters, like several other members of the genus, have a habit, on clear starlight nights, of leaving their roosts and rising high into the air, where they sail about uttering their clear chirruping notes. I have constantly noticed the same habit in *Merops sumatranus* in the Malay Peninsula. It occurs when the birds are well settled down in their winter-quarters, and has nothing to do with migration. It is well known that in England Swifts may sometimes be seen on a summer evening rising into the air until lost to sight, apparently spending some portion of the night on the wing, and it seems to me that these birds, with powers of wing which must surely make flight a delight to them, have acquired on their migrations a love of floating through the still night air over a sleeping world, which is not difficult to understand. I mention this, as the recreation, or *play*, of birds and animals (quite a different thing from actions connected with sexual *display*), which generally takes the form of rapid motion, receives but little attention.

146. MEROPS PERSICUS Pall.

The Blue-cheeked Bee-eater is also an abundant visitor in winter and spring until the end of April.

In 1902, at the beginning of March, I met with it in great numbers at Lake No and along the Bahr-el-Ghazal, sitting on the "ambatch" and papyrus, and skimming down to capture insects from the surface of the water. Eastwards I have shot it at Gedaref and have seen specimens from Kassala. It is often common at Khartoum.

147. MEROPS ALBICOLLIS Vieill.

a. ♂. Near Gedaref, June 9, 1901.
b. ♂. Wells at Fou, May 21, 1903.
c. ♂. Setit River, May 14, 1903.

The beautiful White-throated Bee-eater, so easily recognised by its pale sea-green colour, I have met with from the Setit to Jebel Ahmed Aga on the White Nile, but it is a comparatively scarce species, and I have never seen very many together. Its favourite haunts are rocky hills or "kopjes" covered with thorn-bush, and in such localities a few pairs are almost always to be found. I have once or twice seen it in Khartoum, but it is rare to meet with it far from the "jebels."

148. MEROPS VIRIDIS Linn.

a. ♂. Khartoum, Oct. 2, 1902.
b. ♂. ,, Feb. 1903.

The Green Bee-eater is very common all over the northern parts of the Soudan. It becomes rarer on the White Nile, but I have seen it at intervals as far along as the Bahr-el-Ghazal, and up that river to Meshra-el-Rek.

The only other Bee-eater with which this species associates is *Melittophagus pusillus.* I have sometimes seen them sitting touching each other, but more often the Green Bee-eater will drive away the other if it approaches too closely.

The brassy lustre which this bird shews when wheeling in the sunlight is very pretty.

149. MEROPS NUBICUS Gm.

a. ♂. Gallabat, May 6, 1901.
b. ♂. River Rahad, June 11, 1901.
c. ♂. Setit River, May 11, 1903.

These lovely Scarlet Bee-eaters are common on every river in the Soudan south of about the 15th degree of N. lat. They breed in large colonies in sandy or earthy river-banks in the months of May and June. I have seen cliff-faces riddled with their holes on the Setit, the Atbara, and the Blue Nile; but the flat banks of the White Nile do not afford any suitable breeding-places. These birds are always in attendance at bush-fires, snapping up the insects as they are driven before the advancing flame and smoke.

The delicate colouring of this species seems to lose much of its brightness after death. Certainly skins give a very poor idea of the beautiful rosy scarlet of its plumage.

150. UPUPA EPOPS Linn.

The Hoopoe may be met with at all times of the year, but only a small minority of the birds are resident, their numbers being suddenly swollen in February and March by migrants from the north. These visitors gradually pass on or scatter over the country, and the numbers decrease again until the noticeable return migration in September.

151. IRRISOR ERYTHRORHYNCHUS (Lath.).

I have seen the Red-billed Wood-Hoopoes on the Upper Blue Nile, the Rahad, Dinder, and Setit Rivers; also on the Bahr-el-Ghazal and in Western Kordofan. They are almost always in parties of from three or four to seven or eight, and are decidedly shy birds, making off one after the other from tree to tree when followed, and usually keeping out of shot. Several times, when I have been following larger game, a flock of these beautiful birds has flown into a tree close to me, and I have been able to watch the squirrel-like ease with which they run up and down the boughs, now and again clinging, Creeper-like, to the rough bark, and with their slender coral-red bills probing the crevices for insects. They are fond of settling on the top of any large tree which rises high above the surrounding bush, such as the gigantic "Baobabs" in Kordofan, and parties generally follow the same line from one to another of these big trees day after day.

152. SCOPTELUS NOTATUS Salvin.

a. ♂. Duem, White Nile, Sept. 30, 1902.

The Straight-billed Wood-Hoopoe is to be found from the east to the west of the Soudan south of about the 15th degree of N. latitude. Though not rare, it is nowhere an abundant species. Unlike the *Irrisor*, it is almost always met with in pairs, and never in parties. It frequents lower bush and more open country than its larger relative, and searches for its food nearer the ground, to which it frequently descends.

153. BUCORVUS ABYSSINICUS (Bodd.).

I have occasionally met with the Abyssinian Ground-Hornbill on the Upper Blue Nile, the Rahad, the Dinder, and the Setit. Once in the rains I saw a party of four on the great open plain west of Gedaref. These birds were feeding on locusts, and it was most interesting to watch them walking round a bush and peering up at the branches until they detected one, when they would spring up to a height of three or four feet, expanding their white wings, and capture it with an unerring snap.

This bird becomes very tame in captivity, and evinces considerable attachment to its owner, whom it will follow about closely. Its movements can be wonderfully quick for so clumsy-looking a bird. I have seen one which looked half asleep make a sudden rush, and seize a mouse that it had caught sight of, in a manner that surprised me. The same bird when it missed a mouse would most patiently and intelligently watch the hole. Its patience usually outlasted mine, and I never saw it catch one in this manner, but no doubt it often did.

Mr. L. Gorringe tells me that he took a single egg of this bird from a hole in a baobab tree at Roseires on June 3rd, 1903.

154. Lophoceros nasutus (Linn.).

a. ○. Mesjid, Blue Nile, March 31, 1901.

This very plain-looking Hornbill is a common bird of the Soudan bush. It ranges further north than the next species —nearly to the mouth of the Atbara. On the White and Blue Niles both kinds occur together, but as the traveller advances further up those rivers the red-billed bird gradually replaces the other.

Mr. N. C. Rothschild notes it as doing considerable damage to the "dhurra" crops at Shendi. In the two specimens which I have examined the stomachs contained locusts only. I have also constantly seen it feeding on these insects, and I fancy that it does more good than harm.

155. Lophoceros erythrorhynchus (Temm.).

The Red-billed Hornbill is abundant on the Blue Nile above Wad Medani, and eastwards to the Abyssinian and Eritrean frontiers. On the White Nile I have seen it as far north as Jebel Ain, while south of this it becomes abundant, extending into the Bahr-el-Ghazal Province. In Western Kordofan it is common, frequenting the great baobab trees.

In the nestling the spots and stripe on the back are buff instead of white. A young bird just taken from the nest was brought to me on the White Nile on Nov. 14th, 1902.

156. Ceryle rudis (Linn.).

a. ♀. Khartoum, Nov. 21, 1902.

The Pied Kingfisher is abundant on all the Soudan rivers. In the "ambatch" along the Bahr-el-Ghazal and on the Jur River it is extremely numerous for a Kingfisher, and I have seen nearly a score together.

157. Ceryle maxima (Pall.).

a. ♂. Gallabat, April 20, 1903.

The Great Spotted Kingfisher is not uncommon on the Upper Atbara near the Abyssinian frontier, and on the Setit. I have also seen it on the Rahad, but not often.

158. Corythornis cyanostigma (Rüpp.).

a. ♀. Gallabat, May 7, 1901.

b. ♂. Roseires, Jan. 24, 1903.

I found the little Malachite-crested Kingfisher common on the khor which runs from Gallabat down to the Atbara, and in the papyrus-swamps of the Upper White Nile and the Bahr-el-Ghazal. On the lower and less swampy parts of the White Nile it is not common. Along the Blue Nile, which has steeper and less marshy banks, I have seen only *Ispidina picta.*

The little khor at Gallabat, several times mentioned in this paper, is a great resort of Kingfishers, as well as of many other birds; on it I have been able to watch *Ceryle maxima, Ceryle rudis, Halcyon semicærulea, Corythornis cyanostigma,* and *Ispidina picta* all fishing at the same pool—a sight which I have never seen elsewhere.

159. ISPIDINA PICTA (Bodd.).

a. ♀. Gallabat, May 7, 1901.
b. ♂. Setit River, May 10, 1903.
c. ♂. Roseires, May 26, 1904.

I have only seen this lovely little Kingfisher on the eastern side of the country, on the Blue Nile and its tributaries the Rahad and Dinder, on the Upper Atbara, and the Setit. It is largely an insect-eater, and is often met with in the bush some little distance from water.

Mr. L. Gorringe, of the Slavery Department, tells me that he obtained a clutch of four partly incubated eggs at Roseires on May 29th, 1903. The nest-hole was in the side of the entrance to an ant-bear's earth.

160. HALCYON SEMICÆRULEUS (Forskål).

a. ♀. Gallabat, May 6, 1901.
b. ♂. Setit River, May 7, 1903.
c. ♂. Roseires, May 26, 1904.

This handsome Kingfisher seems widely distributed. I have met with it from the Setit and Upper Atbara on the east right across to Western Kordofan, and as far south as the Bahr-el-Ghazal. It is locally migratory to the extent of spreading in the rains over tracts of country which are waterless during the dry weather, during which it is only met with in the neighbourhood of the rivers.

161. Halcyon chelicutensis (Stanl.).

a. ♂. Kaka, White Nile, Feb. 24, 1902.

I have only seen this Kingfisher a few times, in the neighbourhood of Kaka and Fashoda. On these occasions it was observed singly, perched on a tree or stump in a clearing on the look-out for insects.

162. Colius macrurus (Linn.).

a. ♂. 20 miles west of Omdurman, Jan. 2, 1903.

The Blue-naped Coly is common and evenly distributed along both the White and Blue Niles, but does not seem to range much further north than Khartoum. In the gardens of that town it is often seen, especially when the dates, to which it is very partial, are ripe, and it breeds in the lime-trees in the early spring. Except in the nesting-season, it is always met with in flocks of from ten to twenty individuals. These parties feed in the closest company, and the birds all take flight from a tree simultaneously. Their flight is straight and rapid, and on the wing they utter a shrill little trilling whistle.

In captivity these Colies become very tame, and thrive well on a diet of dates and figs.

163. Colius leucotis Rüpp.

a. ♀. R. Setit, May 12, 1903.

Widely distributed. I have shot it on the Setit River, on the Bahr-el-Ghazal, and at intermediate points on the Blue and White Niles. I do not remember to have seen it frequenting gardens and date-palm groves like the blue-naped species.

164. Schizorhis zonura Rüpp.

a. ♂. Gallabat, April 15, 1903.

The Grey Plantain-eater is generally to be found in small parties among the tall trees in the neighbourhood of Gallabat and on the Upper Atbara. I have not myself met with it elsewhere.

165. Centropus monachus (Rüpp.).

This Lark-heeled Cuckoo is very common on the marshy portions of the White Nile, and in the "sudd" along the Bahr-el-Ghazal and Jur Rivers. It is quite a swamp-bird.

166. Centropus superciliosus Hempr. & Ehr.

a. ♀? Eilafun, Blue Nile, Jan. 2, 1903.

This bird occurs south of the Atbara to the Lower White Nile, and along the Blue Nile to the Abyssinian frontier. It keeps to the thick bush in the vicinity of rivers or cultivated lands, and is of shy and skulking habits. It frequents drier ground than the last species.

167. Coccystes glandarius (Linn.).

The Great Spotted Cuckoo is a rare migrant in the Soudan. I saw one which was wantonly shot by an Italian artisan at Khartoum on July 7th, 1901, and I have met with it a few times in August and September.

168. Cuculus canorus Linn.

a. ♀. Gedaref, April 21, 1901.

The Cuckoo arrives in the Soudan in large flights, but soon practically disappears again until its return journey in the spring. At Khartoum I have noted September 13th as the average date of its arrival. It passes north again from the middle of April to the middle of May.

Many of the autumn arrivals are so exhausted that they can hardly fly; in the spring this is not noticeable.

169. Indicator sparrmani Steph.

The Common Honey-Guide is not rare on the Blue Nile tributaries, Atbara, and Setit. I observed that my native guides, who were professional honey-collectors, always kept an eye on these birds, and declared that they found much of their honey by watching them. One certainly attracted my attention to a comb, round which it was chattering excitedly, but I cannot say that I ever saw these birds make any obvious attempt to attract man's attention. The truth is that the Honey-Guides know of all the bees' nests in their neighbourhood and visit them constantly. By following them about, therefore, one is pretty sure, sooner or later, to find honey.

170. MELANOBUCCO VIEILLOTI (Leach).

a. ♂. Kaka, White Nile, Feb. 24, 1902.

I have met with Vieillot's Barbet occasionally on the White Nile, the Blue Nile and its tributaries the Rahad and Dinder, and on the Setit, but nowhere have I found it very common.

171. TRACHYPHONUS MARGARITATUS (Rüpp.).

a. ♂. Setit River, May 7, 1903.

b. ♂. West of Omdurman, Jan. 3, 1903.

This Barbet is widely distributed. I have noted it from Kassala to Western Kordofan, as far north as Shendi, and south to Fashoda and the Bahr-el-Ghazal. It was abundant at Bara (Kordofan) in April 1904, assembling in the fig-trees in the gardens and drinking at the "shadoofs." It is occasionally met with at great distances from water.

172. IYNX TORQUILLA Linn.

The Wryneck is a regular, but rather scarce, winter-visitor. According to my notes, I have seen it only at Khartoum, in September (earliest date, 12th) and October.

173. CAMPOTHERA NUBICA (Gm.).

a. ♂. R. Rahad, April 6, 1901.

b. ♂. " May 22, 1903.

c. ♂. Jebel Melbis, Kordofan, April 15, 1904.

d. ♂. Roseires, June 20, 1904.

Quite the commonest Woodpecker in the Soudan. I have seen it wherever I have travelled, except, of course, on treeless desert or swamp.

174. IYNGIPICUS OBSOLETUS (Wagl.).

a. ♀. Kaka, White Nile, Feb. 24, 1902.

b. ♂. R. Rahad, May 22, 1903.

This Pigmy Woodpecker seems as widely distributed as the preceding species, but is very much scarcer.

175. VINAGO WAALIA (Gm.)?

I have frequently seen Green Pigeons in the woods on the Bahr-el-Ghazal, but, never having shot one, I cannot identify the species with certainty.

176. Columba guinea Linn.

a. ♀. Gedaref, May 25, 1901.

The Maroon-backed Rock-Pigeon is common in the rocky gorges of the Upper Atbara, from which it ranges into the surrounding district. I have shot it at Gedaref and Gallabat, and have seen it also at Tewfikia on the White Nile, where I noticed it feeding about the town almost as tamely as a domestic Pigeon.

177. Turtur communis (Selby).

The Turtle-Dove is abundant in the winter and spring.

178. Turtur decipiens Finsch & Hartl.

179. Turtur roseigriseus (Sundev.).

These are quite the commonest Doves in the Soudan. *T. decipiens,* however, seems to keep more to the vicinity of rivers than *T. roseigriseus.* The latter bird I found in thousands round the wells of Bara, in Kordofan, where the former seemed to be entirely absent. I have taken eggs of *T. decipiens* on the White Nile in November.

180. Turtur senegalensis (Linn.).

The Senegal Turtle-Dove is tolerably common, but nothing like so numerous as the two preceding species.

181. Chalcophaps afra (Linn.).

This pretty Dove is not uncommon on both the Niles and their tributaries. I have never seen it in flocks or at any distance from the rivers. The bird reminds me of *Chalcophaps indica* in its flight and gait when on the ground.

182. Œna capensis (Linn.).

a. ♂. Khartoum, Feb. 22, 1903.

The Long-tailed Dove is common throughout the Soudan wherever there are trees or bushes. Considerable numbers come into Khartoum in February, to breed in the gardens, but disappear again after rearing their young. The nest is a small, slight platform of sticks ; the eggs are ivory-coloured, like those of *Chalcophaps indica.* I have taken them in March, April, and May.

183. Pœocephalus meyeri (Rüpp.).

a. ♂. Jebel Melbis, Kordofan, April 4, 1904.
b. ♀. " " " April 5, 1904.

I have seen Meyer's Parrot only in Kordofan, where, from the vicinity of El Obeid to Mazrub, it was met with almost daily, though always in small numbers. The birds were most frequently in pairs, but sometimes in parties of seven or eight. They keep principally to the huge "baobab" trees which in Kordofan are scattered through the thorn-bush, and in these they doubtless breed. They are wary little birds, difficult to approach, and take a good deal of hitting to bring them down.

184. Palæornis docilis (Vieill.).

The Green Paroquet is common and seems to occur wherever there are fair-sized trees south of the 15th degree of N. latitude. On the eastern side of the country it probably ranges further north than this.

185. Strix flammea Linn.

I have seen or heard the Barn-Owl almost everywhere I have travelled in the country.

186. Asio accipitrinus (Pall.).

a. ♀. Kamlin, Blue Nile, March 3, 1903.

I picked up a Short-eared Owl at Khartoum on Nov. 26th, 1902. I saw several, and shot one, on the Blue Nile in March 1903, and in the winter of 1904 I observed the bird several times in gardens at Khartoum.

187. Asio capensis (Smith).

a. ♀. Bahr-el-Homar, March 16, 1902.

My specimen was shot as it rose from a patch of swampy ground near the junction of the Bahr-el-Homar and the Bahr-el-Ghazal. I had previously in February twice flushed Owls of this species from a marshy khor at Kaka.

The high papyrus "sudd" along the Bahr-el-Ghazal is usually full of Owls, which I never managed to identify satisfactorily, owing to the impossibility of retrieving a specimen if I shot it; I think however that they may belong to this species. As a steamer moves up the narrow channel, often brushing the papyrus on both sides, the Owls flap out in front of it, and dive into the cover again fifty yards ahead, only to be driven on again in company with others as the vessel catches them up.

I never saw so many Owls together before or since as I did at this place in February 1902.

188. Glaucidium perlatum (Vieill.).

a. ♀. Jebel Melbis, April 15, 1904.
b. ♀. „ „ April 17, 1904.

The little Pearl-spotted Owlet was abundant in the large trees along the khor between El Obeid and Jebel Melbis. Its note is very like that of some of the Scops Owls—a jerky liquid "hoot-coorroo!" I also heard the bird at Bara.

189. Scops giu (Scop.).

a. ♀. Tewfikia, White Nile, March 27, 1902.
b. ♂. Roseires, Blue Nile, April 26, 1904.

I have noticed the Scops Owl only in the winter and spring months (between October 13th and April 26th).

I have seen it at Khartoum, on the White Nile and Bahr-el-Ghazal, on the Blue Nile and its tributary the Dinder.

All the birds which I noticed at Khartoum were sitting asleep in lime-trees, but the specimen shot at Tewfikia was asleep on the ground, rather an unusual resting-place for a Scops Owl.

190. Scops leucotis (Temm.).

I saw an individual, close enough to recognise, sitting in a thorn-tree at Gallabat on April 13th, 1903. I had a good look at it, but it flew away just before I could get my collecting-gun, which was on a lagging camel. I have seen no other specimens except those collected by Mr. Rothschild at Shendi, some of which he shewed me in the flesh.

191. Bubo ascalaphus Sav.

The Desert Eagle-Owl is not an uncommon bird on the rocky hills or "Jebels" which are scattered over the sandy wastes of the Soudan. I have seen it at Shendi, west of Omdurman, and on Jebel Melbis in Kordofan. Sometimes, though rarely, an individual wanders into the town of Khartoum from the neighbouring hills, and takes refuge in a date-palm, where, however, the swarming Kites give it so little rest that it makes but a short stay.

192. Bubo cinerascens Guér.

a. ♂. Gedaref, May 15, 1901.
b. ♀. " " "

A common Owl in the Soudan. I have met with it at Gedaref, on the Rahad, and at various points on the White and Blue Niles and the Bahr-el-Ghazal. At Gedaref I once put five out of a small cave on a rocky hill. It is a very wide-awake bird, and difficult to approach after it has once been disturbed. The note is a monosyllabic hoot.

193. Pandion haliaëtus (Linn.).

On both the Niles the Osprey is not uncommon. It is occasionally seen at Khartoum.

194. Falco sacer Gm.

The Saker Falcon seems rare. I have one alive which was caught at Khartoum in October 1904. According to the old native woman from whom I bought it, two of these birds fell gyrating from the clouds, locked in a desperate struggle, and allowed her to throw a cloth over them on the ground, but one managed to escape.

I have seen the bird a few times in the deserts of the Northern Soudan.

195. Falco barbarus Linn.

a. ♂. Rufaa, Blue Nile, June 19, 1901.

This specimen was one of a pair which frequented a group of date-palms at Rufaa, and was apparently breeding, or had just bred. The Barbary Falcon seems scarce; the only other time that I have identified it with certainty was at Duem, on the 29th of September, 1902.

It is a far finer Falcon on the wing than the Lanner.

196. Falco feldeggi Schl.

a. ♀. Khartoum, Oct. 15, 1902.
b. ♂. " Oct. 25, 1902.

c. ♀? Khartoum, Nov. 25, 1902.
d. ♀? „ Nov. 26, 1902.
e. ♂. „ Dec. 2, 1902.
f. ♂. „ Dec. 23, 1902.

The Lanner is quite the commonest Falcon along the White and Blue Niles. There is almost always a pair frequenting the palm-trees of Khartoum, but it is very seldom that more than two of the birds are seen in the neigbourhood at the same time. If, however, one of them is shot, it is sure to be replaced by a new arrival within a day or two. This happened half a dozen times in the winter of 1902 when I shot my specimens.

The Khartoum Falcons go a great distance up the White Nile during the day in search of the small Waders, Wagtails, &c. which crowd its banks, usually returning to roost in the date-palms about half an hour after sunset. They always take exactly the same line, and come rushing home through the gathering gloom at a tremendous speed. Almost all my specimens were shot in the evening by waiting for them at the same point. All of them, with the exception of a beautiful adult male, are in the brown plumage of immaturity, some shewing a few grey feathers on the back. One of them had a Blackcap Warbler in its claws, which was so little damaged as to make a good skin.

The following notes on the species are from my diaries :—

"March 22, 1901. Visiting the old quarry at the Meroë pyramids with Rothschild and Wollaston we disturbed a quantity of bats, and as they flew out into the open a pair of Lanner Falcons appeared and began hawking them vigorously, each quickly catching one. Later, we found their nest with three young in down on one of the pyramids. A Bateleur Eagle which passed close to the nest was attacked and driven off."

"Dec. 2, 1902. A Lanner Falcon picked up a little Ringed Plover close to me wonderfully smartly this evening. The Plover was toddling along on the mud within a few yards of me; the Falcon came down at a slant with a rush like a hurricane. As he struck the Plover he lowered and spread his tail, which scraped the mud for a yard or so and checked him just for an instant. Next second he was away again with his victim in his foot. The Plover never saw him coming, and had not even time to spread its wings."

"Jan. 1st, 1903. This evening I saw a Harrier (*Circus macrurus*) with a bird in its claws, closely pursued by two Kites which were trying to rob it of its prey. The Harrier succeeded for some time in holding its own, though repeatedly buffeted by its pursuers, when a Lanner dropped down on the three wheeling birds like a veritable bolt from the blue. Dropping its prey the Harrier just dodged the stoop; right and left the Kites dashed outwards in dire alarm; right through the tree the Falcon shot, caught the falling bird thirty feet below them, curved instantly upwards again, and with rapid driving strokes of its rigid sickle wings was gone as suddenly as it came."

197. Falco tanypterus Schl.

a. ♂. Dinder River, May 1903.
b. ♂. Bara, Kordofan, April 1904.

I should call this Falcon scarce, and am inclined to think that the birds which Mr. Witherby took for this species, and noted as "fairly frequent from Duem southwards," were *Falco feldeggi*. Mr. Hawker found the Lanner to be the common Falcon of the White Nile, and my experience has been the same.

198. Falco ruficollis Swainson.

a. ♂. Tewfikia, March 26, 1902.
b. ♂. Roseires, Feb. 9, 1904.

I have only met with the Red-headed Merlin near Tewfikia and Fashoda. I have also a skin from Roseires obtained by Mr. Middleton. It is generally found frequenting *Borassus* palms.

199. Falco subbuteo Linn.

I saw a Hobby at Gedaref on May 27th, 1901, hawking among some Swifts just before a thunder-storm; and another at Sherif Yakub on the Rahad in June. In 1904 I also observed one in May on the Blue Nile. It seems decidedly scarce.

200. Erythropus vespertinus (Linn.).

a. ♂. Khartoum, Oct. 1, 1901.
b. ♀. ,, Nov. 23, 1902.

The Red-footed Hobby is occasionally met with near Khartoum in the winter—more often in scattered flights than singly. At times I have seen as many as a dozen hovering over the cultivated lands. While the Kestrel so frequently settles on the telegraph *posts,* this smaller-footed bird is generally to be seen sitting on the *wires.*

201. Tinnunculus alaudarius (Gm.).

a. ♂. Khartoum, Feb. 9, 1904.

The Common Kestrel is abundant throughout the country from September until March, and I noticed it once at Khartoum on July 12th, but it is seldom seen in the hot months. I have observed it from the Abyssinian frontier to Meshra-el-Rek on the Bahr-el-Ghazal.

Tinnunculus alopex (Heugl.) I have sought for in vain.

202. Tinnunculus cenchris (Naumann).

a. ♂. Gedaref, April 1901.

I saw the Lesser Kestrel several times on the rocky hills round Gedaref in April 1901, but have not come across it since.

203. Elanus cæruleus (Desf.).

The Black-shouldered Kite is a common bird in the country round Gedaref, frequenting rocky hills, open grassy plains, and thin bush. I have also met with it, though less often, on the White Nile and Bahr-el-Ghazal. It is one of the earliest birds astir in the morning, and may often be seen hovering Kestrel-like over the plains in the grey light of dawn.

204. Nauclerus riocouri (Vieill. & Oud.).

The African Swallow-tailed Kite seems decidedly scarce in most parts of the country. I saw one example on April 8th, 1901, at the wells of Fou (between Wad Medina and Gedaref), but did not meet with another until April 1904, when I saw this bird singly on several occasions west of Mazrub in Kordofan.

205. Milvus ægyptius (Gm.).

The Egyptian Kite is abundant throughout the whole Soudan. In the towns it is a useful scavenger and an impudent thief, becoming very fearless, though always crafty, where it is used to the daily presence of man. On one occasion, at Gallabat, a Kite snatched away a bird (*Laniarius erythrogaster*) which I was skinning at a table in the open air, scratching my hand deeply in doing so. I have seen it commit other thefts as bold.

In the bush it always follows grass-fires to feed on the insects which are driven up by the flames, and attends herds of the larger game-animals in the same manner to catch the locusts disturbed by their passage.

206. Haliaëtus vocifer (Daud.).

The African River-Eagle is common on both the White and Blue Niles, being more and more frequently met with as the traveller ascends the rivers. On the smaller waters I do not remember having seen it.

Mr. G. B. Middleton brought me two tiny nestlings, covered with white down, from the White Nile in October 1904. These are now well-grown birds, and very tame, but one of them has deformed feet, and can only move about on its houghs. There was a third egg in the nest, containing another chick, but this was broken under the impression that it was addled.

207. Helotarsus ecaudatus (Daud.).

The Bateleur Eagle, though nowhere abundant, occurs all over the Soudan. I have seen it from Shendi in the north to the White Nile and Bahr-el-Ghazal, and from the Abyssinian frontier to Western Kordofan.

To my mind this is the most beautiful Eagle in the country, and its flight is always a delight to me to watch. The buoyant power of the bird, as it sails for miles with hardly a stroke of its rigid upturned pinions, is a sight to be seen. The extreme shortness of the tail gives the Bateleur a crescent shape in flight which is quite peculiar to it; the black of the heavy-looking head and breast contrasts strongly with the silvery white of the under wing as it soars through the brilliant African sunlight; while, if the bird is near enough, the red of the bill and feet forms a further touch of vivid colour.

This Eagle has a powerful cry, which on paper might be rendered as "*ka-ow*!" It is, however, very silent as a rule.

I have seen a pair of Bateleurs circling over a female *Oryx leucoryx* which had a newly-born calf under her, and, though they made no attempt to attack, the anxiety of the mother was obvious.

208. Aquila rapax (Temm.).

a. ♂. Jan. 30, 1903.
b. ♀. Um Dam, Kordofan, May 5, 1904.

The Tawny Eagle is not uncommon. It seems to be more plentiful in Kordofan than in any other part of the country that I have visited. I purchased a young bird at Fashoda in April 1902, which is still living in the Zoological Gardens at Cairo.

The specimen shot at Khartoum was drinking at the edge of the river in the centre of a group of Egyptian Geese. Its crop contained pieces of putrid goat's flesh and skin.

209. Aquila nipalensis Hodgs.

Lt.-Col. Penton, D.S.O., has shewed me the skin of an Eagle which he shot at Um Dam (Kordofan) in 1903. I think that it belongs to this Steppe-Eagle, but I am not familiar with the bird, and am not positive about my identification.

210. Lophoaëtus occipitalis (Daud.).

The Black-crested Eagle is fairly common throughout the forest-country of the Soudan. I have noted it at Gallabat, on the Blue Nile, Rahad, and Dinder, on the White Nile and on the Bahr-el-Ghazal. In the sandy bush-plains of Western Kordofan it seems to be absent.

Though such a handsome Eagle it is rather ignoble on the wing, the flight being somewhat Kite-like, but not so graceful.

211. Buteo desertorum (Daud.).

a. ♀. Khartoum, Nov. 11, 1902.
b. ♂. „ Oct. 1902.

The Desert-Buzzard is often to be seen in and about Khartoum during the cold months. It frequents the date-palms in the town in the same manner as the Kites.

212. Butastur rufipennis (Sundev.).

I have noted the Red-winged Buzzard-Eagle between Gedaref and Gallabat (May 1901); from Duem to the Bahr-el-Ghazal (Feb. and March 1902); very numerous from a little south of Khartoum to Kawa (Sept. 30th to Oct. 2nd, 1902), but not anywhere on the same run six weeks later. I have also met with it on the Rahad and Dinder Rivers (May 1903). It is more or less migratory, being much more abundant at some times than others. In habits it is a quiet, rather sluggish bird, fond of perching on a prominent reed or stick in the swamps of the White Nile, and feeding largely upon insects.

213. Melierax polyzonus (Rüpp.).

a. ♀. Sherif Yakub, Blue Nile, April 4, 1901.
b. ♂. Roseires, Dec. 1902.

This fine Hawk is very common in the Soudan, and I have seen it practically everywhere I have travelled. It is rather a sluggish bird and generally allows a near approach; the red cere and legs shew up brightly against its blue-grey plumage.

Besides my own specimens I have examined others, and have shot birds in widely separated parts of the Soudan. I do not think that any allied species, such as *Melierax metabates* Heugl.* exists in the country, and consider that this name, as has been suggested, should be relegated to the position of a synonym.

I took a nest of this bird containing one hard-set egg at a village near the Atbara on April 26th, 1903. It was a slight structure of sticks, unlined, and was placed on the horizontal bough of an acacia. The egg was dirty white, with the inside of the shell greenish.

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* *Cf.* Salvadori, Ibis, 1904, p. 248.

214. MELIERAX GABAR (Daud.).

a. ♀ jr. Khartoum, Feb. 9, 1902.

b. ♂ (var. *niger*). Khartoum, Oct. 21, 1902.

c. ♂ ad. Roseires, Blue Nile, Dec. 1902.

The Red-faced Chanting-Hawk is fairly abundant in winter and spring, but seems to disappear from the country in the hot months of June, July, and August. It arrives at Khartoum in considerable numbers at the end of September, and at first keeps together in threes and fours, but after a few weeks the numbers diminish and the majority seem to pass on. Immature birds far outnumber the adults. I cannot consider *Melierax niger*, though it has stood as a species for so long, anything more than a melanistic form of this bird. Apart from colour, it is absolutely the same in measurements, plumage, and structure of the feet. A few of these black birds always arrive among the flights of the others, and are commonly members of the little parties which follow each other from tree to tree. In no case can I find that *M. niger* occurs where *M. gabar* does not.

Looking through the series of skins in the British Museum, I was struck with the irregularity of the colouring of the feet, which may be entirely black or only mottled with it. This, again, looks like melanism. Among the series was a black skin from Somaliland, obtained by my friend Captain H. N. Dunn, together with a typical *M. gabar*, and marked "melanistic variety."

That these black birds are specifically distinct I cannot believe. I think that they form an exactly similar case to that of the well-known "Sabine's Snipe."

215. ASTUR UNDULIVENTER (Rüpp.)?

On March 19th I shot a beautiful little bright grey Sparrow-Hawk with orange eyes on the Bahr-el-Ghazal, but that night the mosquitoes made skinning an impossibility and I did not preserve it. I think, from memory, that it belonged to this species.

216. Circus macrurus (Gm.).

a. ♂ ad. Khartoum, Oct. 28, 1902.
b. ♂ jr. ,, Oct. 29, 1902.

The Pale Harrier is common in the winter and spring, keeping mostly to the neighbourhood of the rivers. I have repeatedly seen it capture the Wagtails which swarm on the White Nile. Its *modus operandi* is to glide low and swiftly along the banks with the frightened Wagtails dashing up underneath it, until some bewildered bird flutters almost into its claws.

217. Circus æruginosus (Linn.).

a. ♀. Khartoum, Feb. 1903.

The Marsh-Harrier is a common cold-weather visitor. At Khartoum, just at sunset, the birds come in from the White Nile in steady succession to roost in the bean-crops. At that hour I have frequently seen twenty-five or thirty in a few minutes.

218. Serpentarius secretarius (Scop.).

I have never come across the Secretary-Bird myself. This is rather curious, as, though scarce, it seems to be widely distributed. I have had it brought to me alive from the White Nile and from Kordofan, and I know that it occurs in the Kassala district.

219. Vultur monachus Linn.

The Black Vulture is most often seen in the northern parts of the Soudan. It seems to be much less numerous than the two following species.

220. Otogyps auricularis (Daud.).

The Sociable Vulture is common, but less so than the next species. It also seems to be a more shy bird.

221. Gyps rueppelli (Brehm).

This seems to be the commonest large Vulture in the country.

222. Gyps kolbii (Daud.).

This handsome Vulture is common on the eastern side of the Soudan. I have seen it on the Rahad, Dinder, Atbara, and Setit Rivers.

223. Neophron percnopterus (Linn.).

The Egyptian Scavenger-Vulture is extremely plentiful over all the northern parts of the country, breeding in the early spring on the rocky "jebels" of the desert or on trees near the villages. It sometimes takes to feeding on dates when they are ripe.

On one occasion the owner of a small date-palm-grove on the Blue Nile came and asked me to shoot a pair of these birds which had a nest in his garden, and were doing much damage to the dates. I went and had a look at the nest, on which the female bird—partly in the brown plumage of immaturity—was sitting, while the male was in the act of eating the dates on an adjacent palm, but, as my gun was not handy, I left without shooting the delinquents.

In Khartoum, where these Vultures abound, they pass the early hours of the morning in scavenging about the streets. During the heat of the day they collect in great numbers on the sandbanks of Tuti Island, opposite the town, where they sit in rows along the water's edge, drinking occasionally. Between two and three in the afternoon they all rise and spend an hour or so soaring in circles in the air.

I once saw one of these birds at Meshra-el-Rek on the Bahr-el-Ghazal, but they become rare on the White Nile before Fashoda is reached, and at that station and south of it are replaced by the next species.

224. Neophron monachus (Temm.).

This Vulture takes the place of the last on the Upper White Nile and Bahr-el-Ghazal. It is first met with near Renk, and at Fashoda almost entirely replaces *N. percnopterus*. The habits of both birds are identical.

225. Ibis æthiopica (Lath.).

The Sacred Ibis is tolerably common on all the rivers from Khartoum southwards.

226. Geronticus hagedash (Lath.).

The Hagedash Ibis is abundant on the White Nile. It has a particularly harsh cry, which it utters whenever it is alarmed.

227. Plegadis falcinellus (Linn.).

The Glossy Ibis, though widely distributed and fairly common, is much less plentiful than the Hagedash.

228. Platalea leucorodia (Linn.).
229. Platalea alba Scop.

Both the Common and the African Spoonbill are fairly plentiful on the larger rivers.

230. Ardea purpurea Linn.
231. Ardea cinerea Linn.

Both the Purple and the Common Heron are very abundant, and are to be found almost wherever there is water.

232. Ardea melanocephala Vig. & Childr.
233. Ardea goliath Cretzschm.

Both the Black-headed and the Goliath Heron are common on the Blue Nile, and the White Nile and its tributaries, but less so than the last two species. I have not noted either of them much north of Khartoum.

234. Herodias brachyrhyncha Brehm.
235. Herodias alba (Linn.).

The Short-toed Egret is a common river-bird, while the Great White Egret is considerably rarer. The first species breeds regularly at Kamlin on the Blue Nile, and also at El Obeid in Kordofan, where it arrives with the first rains and nests in thorn-trees in the town.

236. Herodias ralloides (Scop.).

The Squacco Heron is a tolerably common bird on the White Nile.

237. Herodias bubulcus (Aud.).

The Buff-backed Heron is fairly common on the White Nile, becoming abundant in the "sudd" district of the Bahr-el-Ghazal, Jur River, &c. It breeds in the "ambatch" along these rivers, and usually congregates in small flocks.

238. Nycticorax griseus (Linn.).

The Night-Heron is common. Immature birds in the spotted grey plumage are always abundant in September and October.

239. Botaurus stellaris (Linn.).

A beautiful specimen of the Common Bittern was picked up at Khartoum in an exhausted and dying condition, and brought to me in November 1904. This is the only time that I have seen it here.

240. Ardetta minuta Linn.

The Little Bittern is a tolerably common bird in the cold weather, but, except just at the time of migration, is only met with in small numbers. On April 29th, 1901, I saw large quantities of these birds passing over Gedaref, and again three days later came upon considerable numbers on migration between that place and Gallabat.

They usually arrive at Khartoum about the beginning of October, and are then commonly found resting during the day in the lime-trees in the gardens.

241. Butorides atricapillus (Afzel.).

The African Green Bittern is not very common.

I found quite a gathering of these birds on the little stream at Gallabat in May 1901, and also saw a specimen shot at Khartoum on July 12th of the same year. I have observed this species on the White Nile, and on one occasion noticed it from the train between Shendi and the Atbara.

242. Balæniceps rex Gould.

a. ♀. Bahr-el-Ghazal, March 23, 1902.

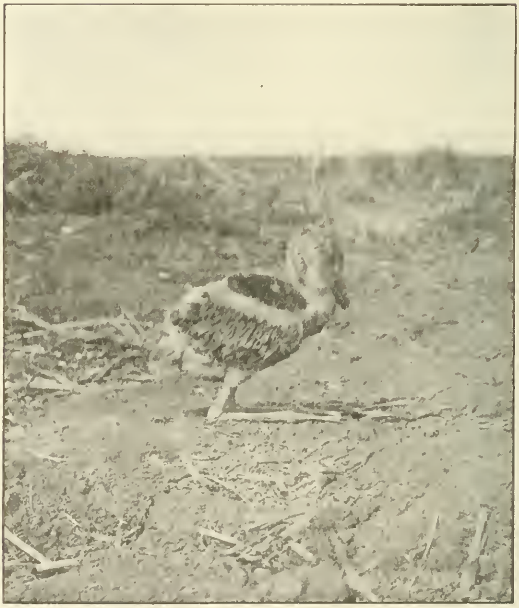
b. Nestling (in alcohol). Jur River, Feb. 1902.

The Whale-headed Stork inhabits the swamps of the Bahr-el-Ghazal from Lake No to Meshra-el-Rek, as well as its tributary the Jur River, and the "sudd" portion of the Bahr-el-Jebel near Shambé.

The following extracts from my diary for March 1902 will give an idea of its numbers at that season on the Bahr-el-Ghazal:—

March 2nd. Lake No, saw two.
,, 3rd. Bahr-el-Ghazal, passed five.
,, 5th. ,, ,, saw three.
,, 6th. ,, ,, saw one.
,, 9th. Meshra-el-Rek, saw one.
,, 10th. Jur River, saw twenty or so.
,, 11th. ,, ,, saw twenty or so.
,, 12th. ,, ,, saw twenty or so again.
,, (From the 13th to 22nd, I was inland.)
,, 23rd. Bahr-el-Ghazal, saw seven or eight; ♀ shot.

Text-fig. 19.



Chick of *Balæniceps rex.*

The habits of *Balæniceps* are morose and solitary. I never saw more than two or three together, and they were generally standing twenty yards apart. Nor did I ever see them in close company with any other species. They seem of a very sluggish nature, and I seldom observed them on the wing, unless put up by our steamer. On one occasion, however, I saw an individual soaring in circles high in the air like an Adjutant. Lieut. Fell, R.N., tells me that he has occasionally noticed the same habit. I believe the stories about *Balæniceps* crushing shell-fish to be a myth. After a considerable experience of this bird in captivity I have never known it attempt to eat shell-fish that were offered it. The bird is a fisher pure and simple, but, doubtless, like a Heron, will eat any small mammal or young water-bird that comes within its reach. Heron-like, *Balæniceps*, instead of searching for his prey, waits patiently for it to come to him. He is generally to be seen standing motionless on newly-burnt swampy ground or short grass flooded with an inch or two of water, inside the fringe of papyrus or "um suf" sudd which separates the channel of the Bahr-el-Ghazal from the plains. I never saw the bird actually wading in water. It almost invariably stands in the same attitude, with the great bill resting on the breast. Its food consists principally of *Polypterus senegalus*, which wanders a great deal into flooded grass-land. Sometimes the bird will perch on the top of a tree, but trees are scarce in its haunts. Its flight is heavy, but powerful ; the neck is drawn back like a Heron's, the bill resting downwards against the breast. The first few primaries are widely separated in flight, as in an Adjutant rather than a Heron ; indeed its flight struck me as more like that of an Adjutant than that of the Giant Heron, to which Captain Flower compares it.

The Arabic name of the bird is "Abu markûb" (Father of a slipper), and not, as given by Sir Harry Johnston, "Abu merkâb" (Father of a boat).

In captivity the Whale-headed Stork seems to do well. Sir Reginald and Lady Wingate have been successful in keeping one alive at the Palace in Khartoum for three years. Photographs of this specimen have been published in various papers, and once in 'The Ibis'*. It was originally brought down from the Bahr-el-Ghazal by Col. Sparkes, C.M.G., who had tipped its wing with a rifle-shot, and it is,

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* See Ibis, 1902, p. 528.

I think, a very old bird. It is fed entirely on small fishes, or, when these cannot be procured, pieces of fish given to it in a bucket of water. It seems to be rather a quarrelsome bird: on its first arrival in Khartoum it seized a fox-terrier which approached it so sharply that the dog fairly yelled; on another occasion it promptly attacked a younger bird of its own species, which I introduced to it as a companion, driving the hook of its upper mandible deeply through the horny sheath of the other's bill. It is capable of inflicting a powerful bite, the sharp cutting-edges of the mandibles leaving four deep cuts on a wrist or finger. This individual shews no disposition whatever to enter water, and seems to prefer the driest and sunniest spots in the garden.

In February 1902 two *Balæniceps* nestlings were procured by Lieut. Fell, R.N., from the natives on the Jur River, and sent down to me to take charge of (see text-fig. 19, p. 374). I happened to meet them on the river, and they shared my boat for some time. One unfortunately died of suffocation, caused by a bunch of threadworms passing up into its throat; the other, along with two more subsequently obtained by the same officer from the same locality, throve well, and these three birds are now in the Egyptian Zoological Gardens at Giza in the best of health. They have a curious trick of repeatedly bringing up their food before finally swallowing and retaining it; this often results in the disgorged fishes being snatched up by Kites, and the birds require careful watching to prevent their losing much of their food in this way.

Balæniceps in captivity, when approached by anyone that it knows, frequently raises its head in the air and clatters its bill rapidly and loudly, the only Stork-like trait which it shews.

Nestlings are covered with grey down of a fulvous tinge. On account of its rarity and interest, and the restricted area that it inhabits, this bird is most strictly protected by the Soudan Government.

My female specimen was shot, by permission, for the Cambridge University Museum of Zoology, and was presented to that institution by Sir Reginald Wingate. It has been well mounted, in a correct attitude, and is rightly much valued. Obtaining a specimen is a matter of considerable difficulty. The birds are very wild, and long rifle-shots from a moving and vibrating steamer are not easy to bring off. In this particular case, after I had quite finished with the bird (*i. e.* missed it standing at 100 yards) Mr. Middleton, the Engineer of the 'Metemmeh,' whom I had asked to assist me in getting a specimen, cut it down in full flight with a ·303 at a long distance—a very pretty, if not lucky, shot.

The measurements of this example (♀) were:—Length 47 inches; tail 11; tarsus 10; wing 26¾.

The stomach contained four fishes (*Polypterus* from 5 to 6 inches long) and the jaw of a rat. This bird had distinct, but irregular and not very deep, pectinations on the middle claws.

The exact breeding-place of this bird described by Petherick has not been rediscovered. Our nestlings were obtained from the Dinka natives on the Jur River. The only first-hand information about its breeding-habits which I have been able to obtain is from Col.-Sergt. Sears, Egyptian Army, who has been a good deal employed in sudd-cutting operations in this region. He tells me that he has frequently seen the nests with young birds, on the plains inland from the Jur, at the end of March and beginning of April. He describes the nests as mere flattened-down spots in the high grass on dry ground; they were found singly, and not in colonies, and contained one or two young only in each case. The eggs he had never seen.

In its solitary nature, its motionless watching for its prey, and the nature of its food, as in the colour of its plumage and the presence of "powder-down" patches, *Balæniceps* is a Heron, though an aberrant one, and seems to have little affinity with the Storks.

243. Scopus umbretta Gmel.

The curious Hammerhead, though nowhere very abundant, occurs in certain places from east to west of the country south of about the 16th degree of N. lat.

It reaches Kassala in the rains, remaining as long as the pools continue to hold water. At Gallabat in May 1901 I found numerous large water-birds gathered together at the pools in the little khor, and among these the Hammerhead was common. Other birds noticed at the same time were Sacred Ibises, Wood-Ibises, Little Cormorants, and Green Bitterns.

This bird is common along the Upper White Nile and Bahr-el-Ghazal. On the latter river I found an empty nest in March 1902—a great domed mass of sticks with the entrance at the side.

244. CICONIA ALBA Bechst.

The White Stork is a common winter migrant. It usually disappears by the end of April, but in 1901 I saw considerable numbers on the Blue Nile from June 18th to 22nd.

245. CICONIA NIGRA (Linn.).

Also a cold-weather visitor, but very much scarcer than the last.

246. CICONIA ABDIMII Licht.

This handsome little Stork is resident in the Soudan, but its numbers are immensely increased in the spring. At that season it migrates for breeding-purposes to parts of the country from which it is entirely absent in the cold months. It has all the domestic habits of the Common Stork while breeding, and flocks to native villages to build its nests on the tops of the straw-thatched conical huts or "tukls."

I passed the month of April 1901 at Gedaref with the late Col. Collinson. During that month we never saw any of these Storks in the district. Col. Collinson told me that they arrived in great numbers every year about May 6th, and set to work at building their nests at once. We left together for Gallabat on May 2nd, and on our return on the 13th Gedaref was crowded with these Storks, which were building on nearly every "tukl."

The few trees in the town were also crowded with nests.

In their breeding-quarters the birds were extremely tame, taking no notice of people within a few feet of them, but the same birds when feeding on the plain round the town were very difficult to approach.

The soft parts of a breeding male which I shot were coloured as follows:—Bill dirty greenish olive, with the tips of the mandibles reddish. Throat and space between the *rami* of the mandible scarlet. A patch over, and joined to one in front of, the eye also scarlet. Skin of the forehead fleshy pink. The rest of the bare skin on the face bright French blue. Legs dirty greenish grey, with the knees and toes reddish.

On leaving Gedaref a few days later I found almost all the villages between that place and the Blue Nile similarly occupied by colonies of these Storks, which were then sitting on their eggs. They were also breeding along the Blue Nile between Wad Medani and Khartoum. In the latter town I have known the bird breed once or twice, but in single pairs only, nesting on date-palms.

247. DISSURA EPISCOPUS (Bodd.).

The White-necked Stork is rather scarce. I have seen it at various points on both Niles.

248. MYCTERIA SENEGALENSIS (Shaw).

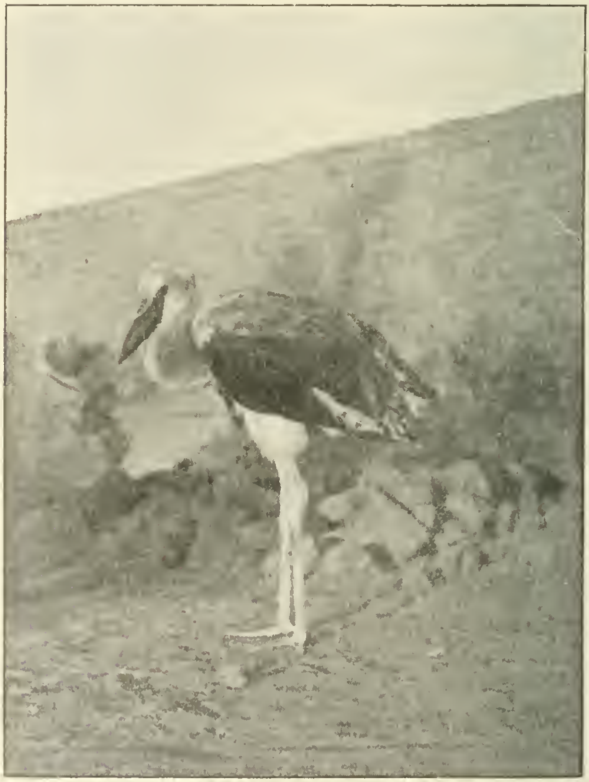
This magnificent Jabiru occurs on the Upper Blue Nile, and on the White Nile, Bahr-el-Jebel, Sobat, &c. I have not seen it further north than Jebel Ain. It is generally found in pairs or in small parties of four or five, searching for frogs and small fishes along marshy banks and khors. It is by no means abundant, but from its great size and brilliant colouring is sure to attract attention whenever met with.

I saw none in the marshes of the Bahr-el-Ghazal in March 1902. In fact, it seems to cease just where *Balæniceps rex* begins, as if these two giant birds avoided each other by mutual arrangement. But Captain Flower appears to have found it there. As it nests on trees, it probably leaves these treeless swamps at certain seasons.

Mr. G. B. Middleton told me that he once saw a nest of this Stork about forty miles north of Fashoda, on the east bank. The nest was built on an old "Heglik" tree. It was a large flat mass of sticks, placed about twenty feet from the ground. The tree was about two miles inland, beyond the swamp-belt, in the open forest. The nest contained one white egg, which was so near hatching that Mr. Middleton failed to preserve it.

At the present time (February 1905) I have two fine young birds alive (see text-fig. 20). They were sent in December from the Sobat by the gentlemen of the American Mission, and are destined for the Giza Zoological Gardens. There

Text-fig. 20.



Young of *Mycteria senegalensis.*

were three of these nestlings despatched, but only two reached me alive. The general colour of the plumage is lustreless greyish black; the head and neck are covered with grey down; the bill is blackish, with only a slight indication of red at the tip; the "saddle" at the base of it is blackish and edged with a fringe of whitish down.

249. Leptoptilus crumenifer (Cuv.).

The great scavenging Adjutant is fairly common everywhere in the vicinity of water. On the White Nile it collects in great numbers when any large animal is killed, and is a regular camp-follower of the big-game hunter. The quarrels which take place between this bird and the Vultures over a carcase are most amusing to watch.

There must be immense breeding-colonies of Adjutants somewhere in the Soudan, though I have never found one. I have, however, heard vague rumours from natives of a great nesting-place in the neighbourhood of the Bahr-el-Arab. Adjutants are comparatively scarce along the White Nile in September and October, and I am inclined to think that they breed about that season.

250. Anastomus lamelligerus Temm. (Open-billed Stork.)

251. Pseudotantalus ibis (Linn.). (African Wood-Ibis.)

252. Phalacrocorax africanus (Gmel.). (Little African Cormorant.)

253. Plotus rufus Daud. (African Darter.)

These four birds are all of wide distribution on the Soudan rivers.

254. Pelecanus onocrotalus Linn.

The Common Pelican is abundant on the Soudan waters. Immense gatherings are often seen on the rivers or on inland lagoons. Some of these large flocks must consume tons of fish in a week.

255. Pelecanus rufescens Gmel.

This is also a common bird in the Soudan, but I have never seen it in anything like such numbers as the last species.

256. Hydrochelidon leucoptera (Meisner & Schinz).

257. Hydrochelidon hybrida (Pall.).

258. Hydrochelidon nigra (Linn.).

259. Sterna anglica Mont.

260. Sterna caspia Pall.

All these Terns are common winter visitors to the White Nile, remaining far into May, by which time they have acquired their full breeding-plumage.

I have seen *Sterna caspia* at Khartoum on July 8th.

261. Rhynchops flaviventris Vieill.

a. ♀. Khartoum, Sept. 1905.

The African Skimmer is a common bird on those parts of the Nile where there are sand-banks on which it can rest. In the "sudd" regions of the Upper White Nile I have not seen it. The bird is crepuscular in its habits, and spends most of the day resting in small flocks on the sand-banks.

Mr. W. G. Percival tells me that he found many nests on some little islands opposite the mouth of the Atbara in April. They were generally deeply scraped hollows, often surrounded with a collection of small shells, and contained two or three eggs.

262. Larus fuscus Linn.

A few Lesser Black-backed Gulls are generally to be seen on the White Nile in winter, but they are rare compared with the Terns.

263. Phœnicopterus sp. inc.

I have only once or twice seen a Flamingo on the White Nile.

264. Plectropterus rueppelli Sclat.

Rüppell's Spur-winged Goose is fairly common on all the Soudan waters south of Khartoum, but nothing like so abundant as the Egyptian Goose. This species and the Comb-Goose are most plentiful in the swamp and "sudd" portions of the country, which the Egyptian Goose cares for least.

I have never seen so many as in April 1903, when I found thousands collected on a lonely lagoon called Ras Amir, between the Rahad and Dinder Rivers.

The Spur-wing is one of the worst birds imaginable for food, being coarse, rank, and fishy.

265. Sarcidiornis melanonota (Penn.).

The "Nukta" is very abundant in the swampy regions of the Upper White Nile. In March 1902 I saw it in great numbers on the Bahr-el-Ghazal and Jur Rivers, and in smaller quantities northwards to Duem. It seems a better bird for the table in the Soudan than in India.

266. Nettopus auritus (Bodd.).

a. ♂. Bahr-el-Ghazal, March 1902.

I have only met with this charming little bird on the secluded waters of the Bahr-el-Ghazal, near Meshra-el-Rek. There it is not uncommon in small parties of five or six. Like other Cotton-Teal it is very swift on the wing.

267. Dendrocycna viduata (Linn.).

The pretty White-faced Whistling-Teal is a common resident species. I have seen it from Gedaref on the east to El Obeid in Kordofan, and from Khartoum the whole way up the White Nile and Bahr-el-Ghazal. At Khartoum it is only common in winter and spring, when the falling Nile exposes the mud-banks and islands. In the rains it may be found on many inland pools and water-courses which are dry in the hot weather.

268. Dendrocycna fulva (Gm.).

I have only come across the Larger Whistling-Teal once, at Kaka on the White Nile, on September 28th, 1902, when I shot one from among a flock of the White-faced species.

269. Chenalopex ægyptiacus (Linn.).

The Egyptian Goose is common throughout the Soudan, but nowhere more abundant than on the White Nile a little south of Khartoum. Further up the river, where the mud-banks give way to marshes and "sudd," its numbers decrease.

I am inclined to think that the autumn and earlier months of winter are its principal breeding-seasons. At any rate by February immense packs congregate, with many immature birds among them, while in this month a large proportion of the old birds are in full moult, and, having shed all their flight-feathers simultaneously, are quite incapable of rising from the water. I have seen at least sixty in this condition out of a flock of about two hundred. I have also seen pairs accompanied by small goslings in the same month. Mr. Hawker's experience seems to have been much the same, but Mr. Witherby describes them as mating at the end of April. Doubtless a certain number breed at all times of the year.

270. Tadorna casarca (Linn.).

The Ruddy Sheldrake is abundant on the White Nile during the winter. It associates more with the Egyptian Geese than with the Ducks, and, like the Geese, rests during the day in large gatherings on the banks, instead of on the water.

271. Mareca penelope (Linn.).

One of our less abundant Ducks in the winter. I have shot it several times at Khartoum.

272. Querquedula crecca (Linn.).

Fairly plentiful on the rivers from October until March. I have several times shot it at Khartoum.

273. Querquedula circia (Linn.).

a. ♂. Khartoum, Sept. 28, 1902.

The Garganey Teal is abundant—much more so than the last species—in the winter and spring.

274. Dafila acuta (Linn.).

a. ♀. Khartoum, Dec. 19, 1902.

The Pintail is the most abundant of the northern Ducks which winter in the Soudan. It arrives at the end of September or beginning of October, and may be met with as late as the end of May.

275. Spatula clypeata (Linn.).

a. ○. Khartoum.

The Shoveler is a common Duck in the winter, and remains late into the spring.

276. Fuligula cristata (Leach).

I have occasionally observed the Tufted Duck on the White Nile in the winter, but have never shot it, or seen one shot.

277. Podicipes capensis Licht.

Mr. G. B. Middleton shewed me the skin of a Dabchick which he had shot on the Bahr-el-Ghazal. I have seen it myself once or twice on the lagoons of the same river.

278. Fulica atra Linn.

I was shown a Coot which had been shot on the White Nile just south of Khartoum in December 1903. This is the only time that I have been able to note its occurrence here.

279. Gallinula chloropus (Linn.).

An exhausted Waterhen, caught alive at Khartoum in October 1904, is the only one that I have seen here.

280. Crex pratensis Bechst.

The Land-Rail arrives at Khartoum at considerable numbers in a weak and emaciated condition during the latter half of September, and is then often caught trying to obtain shelter in gardens, outbuildings, &c. The flights, however, soon pass on further south.

281. Porzana maruetta Linn.

I had four specimens of the Spotted Crake, caught alive by natives, brought to me at Khartoum in September 1904 and one in March 1905.

282. Limnocorax niger (Gm.).

I have seen the Black Rail from Kaka southwards on the White Nile, and on the Bahr-el-Ghazal and Jur Rivers. Sometimes, when I have been waiting for a shot at hippopotamuses, two or three of these Rails have come and chased each other about within a few feet of me. In the cover of the reeds they are rather noisy, constantly uttering a shrill cry. Mr. Middleton tells me that he once took one of these birds from the stomach of a Heron shot on the Bahr-el-Jebel.

283. TURNIX LEPURANA (Smith).

Colonel Blewitt told me that a little Button-Quail was very abundant at Fashoda at the commencement of the rains, and that he had once shot as many as thirty couple there in one morning. I think that this must be the species.

284. ORTYXELUS MEIFFRENI (Vieill.).

a. ♂. Near El Obeid, March 24, 1904.

I first met with this most curious little Quail in May 1903 on the plateaux on each side of the Setit River, near the Abyssinian frontier, a locality from which it has not, I think, been previously recorded. I only saw it there, however, on three occasions.

In Kordofan it seemed tolerably abundant (March and April 1904) round El Obeid, thence past Jebel Abu Sinun to the Mazrub Wells, and in the waterless country west and south of them, where I came across it daily when looking for *Oryx leucoryx*, sometimes seeing a score or more in a morning's ramble. The birds were almost always in pairs, but did not appear to be breeding at the time. Dissection of the single male bird shot gave me the impression that they would have been nesting shortly. They probably lay their eggs at the commencement of the rains in May and June.

The country frequented by *Ortyxelus* is principally of red sand thinly studded with acacias, and everywhere covered with the detestable burr-bearing grass called by the Arabs "heskanit" (*Cenchrus catharticus*). A small thistle-like *Blepharis* (*B. linarifolia*) is also very abundant. The habits of the bird are most interesting. On the ground it appears to be a *Turnix* pure and simple, always concealing itself in grass-cover, through which it threads its way very rapidly, running in a crouching attitude. When hard pressed it crouches until almost trodden on, but as it rises all resemblance to a Quail ends. Springing up with none of the "whirr" that characterizes even the smallest game-birds, it flies in jerky undulations, often rising to a considerable height, and sometimes going a long distance before settling again—to all appearance a bob-tailed, broad-winged *Lark* and nothing else! In flight the white shoulder-patches are very noticeable.

I should say that the genus is rightly placed after *Turnix*, and not, as in the 'Catalogue of Birds,' near the Courier-Plovers, to which I can see only a faint resemblance in the shape of the head, and none whatever in habits, though Mr. Jackson has referred to it in his field-notes as the "Little Courser." Throughout my diaries it appears as the "Lark-Quail."

The crop of my specimen contained small grass-seeds only.

Further north, in Western Kordofan, Capt. H. N. Dunn obtained the bird at Jebel Haraza in the winter of 1902.

Spirit-specimens of *Ortyxelus* would be most welcome at the Natural History Museum, and would enable the affinities of the genus to be settled definitely. Unfortunately, seeing that the bird was plentiful, and not knowing that it was in such request, I shot only one example.

285. COTURNIX COMMUNIS (Bonn.).

Compared with its numbers in Egypt, the Quail can only be called a scarce winter-visitor to the Soudan. I met with it here and there wherever I travelled, but have never seen more than a few couple in a day, or a sufficient number to afford any shooting. I have noticed it in every month between September and May.

286. FRANCOLINUS CLAPPERTONI Childr.

a. ♂. Jebel Melbis, Kordofan, April 16, 1904.
b. ♂. " " " " "
c. ♀. " " " April 11, 1904.

This Francolin is the common "Partridge" of the Soudan. It is abundant on the Upper Atbara, the Gash near Kassala, the Setit, the Blue Nile and its tributaries, the White Nile, and in Kordofan. On the White Nile its range appears to overlap that of *F. gedgii*, a species that I have never come across, as the Francolins which I have shot on the Sobat and the Zeraf are identical with my more northern specimens.

287. PTILOPACHYS FUSCUS (Vieill.).

a–k. ♂ ♂ & ♀ ♀. Eleven specimens. Jebel Melbis, April 1904.

The only locality in which I have found the little Stone-Pheasant is the khor which runs from El Obeid to Jebel Melbis (Kordofan). Along this dry sandy nullah, which is fringed with large trees and thickets, the birds were numerous, but they did not appear to leave the immediate vicinity of the khor. They were almost invariably in small parties of from five to seven; they kept in very close company, and closely resembled diminutive bantam-hens, carrying their tails erect and in the same manner. They were very shy, and when approached scuttled off into the thickets with great rapidity. They seldom flew, except from the *other* side of a dense thicket, and all my specimens were obtained by running shots. They seemed silent birds, but once or twice when a party had been scattered by a couple of shots the survivors commenced a shrill little screaming cry. Their flesh is excellent.

Immature birds which I shot seemed to have been bred in the previous rains and were fully grown.

The Stone-Pheasant also occurs in the Bahr-el-Ghazal Province.

288. NUMIDA PTILORHYNCHA Licht.

a. ♀. Jebel Alatarang, March 1901.

This Guinea-fowl is abundant—in places extraordinarily so—practically all over the Soudan wherever there is bush. I have not myself seen it north of the islands below the Sixth (Shabluka) Cataract, nor is it really plentiful until above Wad Medani on the Blue Nile and Jebel Ain on the White Nile.

In some parts of the country its numbers are astonishing. At times I have had hundreds and hundreds toddling away in front of me in one great blue-grey drove. Such large numbers were a perfect nuisance if I happened to be stalking big game, rising at every step with noise enough to ruin my chances of escaping detection, and many a stately Kudu bull still carries his coveted spiral horns through the African bush thanks to their timely warning.

They seem to breed in the rains, a time when travelling is difficult in the Soudan, and I have never found their nests.

289. Pterocles exustus (Temm.).

The most abundant Sand-Grouse in the Soudan. It occurs in the deserts of the northern part of the country in immense numbers, but in the dry season always remains within flying distance of the rivers. With its power of flight, however, this distance is very considerable—fifty miles at least, and probably much more. Desert-birds as they are, Sand-Grouse are great drinkers. During the rains, when pools of water are formed inland in the deserts, we see little of them, but throughout the dry weather they visit the rivers to drink every morning, coming week after week to the same spots, where shelving sand-banks make access to the water convenient for them. At this season they afford the best bird-shooting in the country, and at one of their chosen drinking-places, between 7.30 and 9 a.m. (according to the distance they have to travel), they come to the water in thousands. In twos and threes, in dozens and scores, in battalions of many hundreds, until the air is full of them, they come rushing from the desert, pitch at the water's edge, secure a hasty drink, and are off again with little or no delay. The flight may last for an hour or an hour and a half, after which not a bird will be seen in the neighbourhood until the next morning.

Many of these birds must traverse very great distances. West of Omdurman I have seen them crossing to the river when I was thirty-five miles from it, the return flight beginning to pass me little more than an hour later.

290. Pterocles senegalensis (Linn.).

a. ♂. Omdurman, Jan. 3, 1903.

The Spotted Sand-Grouse is a bird of the same distribution and habits as the last species, in company with which it visits the rivers daily to drink, but it is very much less abundant.

In any considerable "bag" of Sand-Grouse some examples of this species are always to be found, but among, perhaps, five hundred which I have at different times looked over I do not think that they amounted to more than five or six per cent.

291. Pterocles quadricinctus Temm.

a. ♂. R. Sobat, March 1, 1901.

b. ♀. R. Setit, May 1903.

This handsome Sand-Grouse seems to be entirely a bird of the black cotton-soil and thorn-scrub, and does not appear to occur on the sandy deserts at all. It does not range so far north as the other species, nor have I ever seen it in anything approaching the same quantities. It is, however, tolerably common in the bush on the White Nile, Sobat, and Bahr-el-Ghazal, and on the Blue Nile, Rahad, Dinder, Atbara, and Setit. It is generally met with among thorn-trees, in pairs or small parties. Unlike the other species, this bird goes in flights to the water at, or just after, sunset.

I found it breeding in fair numbers on the Dinder in March 1903. On the 19th, while tracking up a wounded bull buffalo, I came on a nest containing two tiny young in down—pretty little blackish-brown things marked with whitish lines. On the 20th I took a clutch of three fresh eggs, and on the 24th another clutch of three, slightly incubated.

It might be supposed that the pinkish colour of the eggs of this bird would render them conspicuous on the black cotton-soil on which they are laid. As a matter of fact, all that I saw were deposited among the scattered fallen leaves of a species of *Bauhinia* (Camel's Foot Tree) which dry to exactly the same clay-pink as the eggs, and among these leaves they are very difficult to detect.

Besides the species mentioned here I have seen, in the valleys among the Shabluka Hills, a Sand-Grouse which I think must be *Pterocles coronatus* Licht.

292. Otis senegalensis Vieill.

a. ♂. Mazrub Wells, May 3, 1904.

This Bustard inhabits the red-sand country of Kordofan.

I first met with it halfway between El Duem and El Obeid, and thence west to the Mazrub Wells.

It is much noisier than the other Soudan Bustards, continually uttering at morning and evening a loud, harsh, grating call-note, which generally seems to come from much nearer quarters than where the bird really is. A gunshot will cause any individual within hearing to start calling at any time of the day. It seemed to me much warier and harder to secure than the little Black-bellied Bustard.

From a description in some MS. notes kindly lent me by Captain Cummins, R.A.M.C., I gather that he shot examples of this species near Goz Regeb on the Atbara. I have never seen it in cotton-soil districts.

293. Otis nuba Rüpp.

I have not met with this Bustard myself, but Capt. H. N. Dunn, R.A.M.C., shewed me the skin of one which he had shot near the Haraza Mountains, in Western Kordofan, and told me that in that locality it was common.

294. Lissotis lovati Grant.

a. ♂. Gedaref, May 24, 1901.
b. ♀. „ May 26, 1901.

All the Black-bellied Bustards which I have *shot* have belonged to this species. Mr. Hawker found this bird and *Lissotis hartlaubi* together on the White Nile, and possibly I have not distinguished between them on the wing, when their appearance must be almost identical.

This Bustard is almost always found in pairs. It does not generally fly very far when flushed, and can usually be walked up again if there is any cover, and killed without much trouble. The big *Eupodotis arabs* seldom settles again within sight when once flushed.

I have shot Lord Lovat's Bustard at Gedaref, at Gallabat, on the Blue Nile, White Nile, and Bahr-el-Ghazal. The stomach usually contains grasshoppers only.

The iris is yellowish brown, the eyelid purple; the bill dusky brown along the culmen, greenish at the base, and reddish brown at the sides; the legs and feet are dirty white.

On the waterless red-sand country of Western Kordofan—the home of *Oryx leucoryx* and *Gazella ruficollis*—I repeatedly flushed a Black-bellied Bustard, which I am inclined to think must have been *Lissotis melanogaster*. It was conspicuously darker than this species, with the wings almost entirely black and brown. On the same ground I shot a West-African antelope, *Damaliscus korrigum*.

295. Eupodotis arabs (Linn.).

This is the common large Bustard of the Soudan, and more or less abundant throughout the country on suitable ground.

From Suakin on the east it extends right across to the west of Kordofan and the Bahr-el-Ghazal Province; I have seen it as far north as the junction of the Atbara with the Nile; I have met with it on the Sobat, but how far south it extends on the Bahr-el-Jebel I do not know.

It is, as a rule, very wary and difficult to approach, affording capital stalking with a rifle; occasionally, however, I have surprised it at close quarters in high cover, and had no difficulty in killing it with a shot-gun.

The following are the measurements of three specimens shot by me at Gedaref:—

	a (♀).	*b* (♂).	*c* (♂).
	in.	in.	in.
Length	35	42	39
Wing	20	25	25
Tail	10½	12	12½
Tarsus	6¼	8	7½
Bill at gape	3½	4	3¾
Expanse of wings	..	84	82

Iris golden orange, paler externally; *bill* yellowish white, dusky along the culmen; *orbital skin* yellowish white; *legs and feet* the same.

The male bird (*c*) weighed 18¼ lbs. The heaviest bird of which I have a note was shot at Suakin, and weighed 22 lbs.

Capt. Cummins, R.A.M.C., wrote to me from Kassala that the average weight of a cock bird was 15 or 16 lbs.

I once saw one of these Bustards roosting on a bush at nightfall. This is, I think, very unusual. It was on the plain between Gedaref and the Blue Nile, where jackals were numerous, which probably accounted for the circumstance. The next morning I met an old black carrying, slung on his camel, a Bustard with its head eaten off, and a jackal with its throat cut. The man had come upon the jackal when it had just killed the bird; he had stalked and knocked it over with a throwing-stick, and was looking forward to eating both!

Taken young these Bustards become very tame, evincing considerable affection for their owners and making delightful pets.

I have only once succeeded in finding an egg: it was on April 19th, at Um Muttra Meila.

These Bustards, though frequent and regular drinkers when near water, are often met with at great distances from it. Like so many other birds and animals in the Soudan, they seem capable of dispensing with water for a time, when necessary, without suffering much inconvenience. Probably, with their powers of flight, these abstinences are never very long.

Eupodotis kori Burch. I have never seen. It must be very scarce.

296. BALEARICA PAVONINA (Linn.).

The beautiful Crowned Crane is common—and in places very abundant—on both Niles and on their tributaries. I have not seen it north of the 16th degree of N. lat. It is a resident species, and appears to breed freely on the White Nile, but I have not myself seen its nest. The native name "Garnook" is an apt imitation of the bird's loud trumpet-like call. These Cranes are favourite garden-pets in the Soudan, and can generally be purchased in Omdurman. In a wild state they seem singularly fearless of crocodiles; I have often seen them standing on a sand-bank all round the sleeping monsters, and I once watched one through glasses pecking something from a ten-foot crocodile's armoured hide.

The drawings of this graceful bird by Sir Harry Johnston are excellent, its characteristic attitudes being admirably caught.

The following is a description of a young bird which had just left the nest (Feb. 20th, 1904):—

Head rufous to fulvous, the cheeks paler, the chin and throat palest; crest rufous to fulvous, the feathers soft and scanty, about 1¾ inch long. The feathers of the neck broadly tipped with rufous, their bases being black on the upper neck only. Feathers of the back broadly, and those of the lower surface more narrowly, edged with fulvous; median secondary wing-coverts white tinged with rufous, and with one black bar; tertiary coverts rufous with several broad black bars. Thighs pale fulvous. No wattles on the face. Iris greyish brown, with an outer ring of pale grey.

297. Grus communis Bechst.

Grey Cranes winter in the Soudan in great numbers. I have seen them as early as September 7th, and as late as the middle of May. Between these months their long lines and V-formations passing over Khartoum are a familiar sight.

Their chief resorts are the cotton-soil plains on which dhurra is cultivated, or the sand-banks and mud-flats in the rivers. Occasionally I have seen upwards of a thousand together.

298. Grus virgo (Linn.).

The Demoiselle Crane, though abundant in the cold weather, is much less plentiful than the Grey Crane. Otherwise the same remarks apply to it.

299. Phyllopezus africanus (Gm.).

a. ♂. Meshra-el-Rek, March 8, 1902.

The White-faced Jacana is a common bird on the swampy parts of the White Nile and its affluents. As the "sudd" is reached it becomes extremely abundant. At Meshra-el-Rek I noticed it feeding tamely among domestic fowls at the muddy landing-place.

300. Lobivanellus senegalus (Linn.).

The Yellow-wattled Lapwing seems to be scarce. I saw three pairs, which were remarkably tame, about the little station of Meshra-el-Rek in March 1902, and I have occasionally seen it at Khartoum and on the White Nile. I also know of its occurrence as far east as Kassala.

301. Sarciophorus tectus (Bodd.).

a. ♀. River Rahad, April 5, 1901.

The Red-wattled Lapwing is a much commoner bird than the last, but nowhere plentiful. I have generally come across it on dry rising ground about villages, to the vicinity of which it is very partial. It does not seem to seek its food in the neighbourhood of water, like the Spur-winged Plover, and is altogether more of a dry-land bird.

It is generally distributed on the Blue Nile and its tributaries, and east as far as Kassala, but is rare on the White Nile.

302. Hoplopterus spinosus (Linn.).

The Spur-winged Plover is abundant throughout the country where there is water, away from which it is never met with. Its food seems to consist chiefly of small coleoptera.

I once saw a pair of these birds pecking something from a basking crocodile's head.

I found it breeding on the Rahad River in April 1903, and took nests containing a single egg on the 10th and 11th, and two eggs on the 15th. About the same time Mr. W. G. Percival told me that he had found numerous nests on small islets opposite the mouth of the Atbara. The tiniest islands are often chosen by this bird to lay its eggs on—a rock ten feet in diameter is large enough. I can hardly imagine that the young remain in this area until able to fly, and suspect that both this species and *Œdicnemus senegalensis* carry their chicks off the islands on which they are hatched, after the manner of a Woodcock.

303. Vanellus leucurus (Licht.).

a. ♀. Khartoum, Feb. 3, 1903.

b. ♀. „ Feb. 4, 1903.

Small parties of the White-tailed Lapwing are almost always to be found in winter frequenting the islands just above the junction of the White and Blue Niles at

Khartoum. Its alarm-note is a short sharp "quit! quit! quit!"

304. VANELLUS GREGARIUS Pall.

a. ♀. Khartoum, Feb. 21, 1903.

I can only find a single note of having come across the Sociable Lapwing. I killed one of a pair which were feeding together on some newly-ploughed land at Khartoum in February 1903. It was in immature plumage, with buff superciliary circlet, grey arrow-head markings on the breast, and some chesnut feathers on the lower surface.

305. CHARADRIUS ASIATICUS Pall.

a. ♀. Khartoum, Nov. 7, 1902.
b. ♂. " Dec. 4, 1902.
c. ♀. " " "

The little Caspian Plover is abundant at Khartoum and on the White Nile during the winter, frequenting cultivated land or sandy desert near the river. Flocks generally feed in very open company, but unite at once when disturbed, and are then wild and difficult to approach again. They are fond of searching for insect-food among garbage and carrion.

306. ÆGIALITIS HIATICOLA (Linn.).

307. ÆGIALITIS DUBIA (Scop.).

a. ♂. Khartoum, Dec. 3, 1902.
b. ♂. " Feb. 21, 1903.

Both these Ringed Plovers are abundant cold-season migrants.

308. STREPSILAS INTERPRES Linn.

The Turnstone is not uncommon on the White Nile in the winter.

309. TRINGA SUBARQUATA (Güld.).

The Curlew-Sandpiper is very common in the winter. It lingers here till the end of May or beginning of June, assuming its full breeding-plumage before departure.

310. TRINGA MINUTA Leisler.

a. ♀. Khartoum, Feb. 20, 1903.

The Little Stint is another very abundant winter-visitor.

311. Pavoncella pugnax (Linn.).

a. ♂. Khartoum, Dec. 1902.

b. ♀. Duem, Nov. 16, 1902.

The Ruff is abundant in winter. It is largely a grain-eater, frequenting the dhurra-fields at harvest-time in flocks. It is also attracted to the vicinity of garbage and carrion in search of insect-food. Ruffs are excellent eating, and afford pretty shooting, being quite wild enough to give sport.

In captivity they become very tame, and spend all their time in ruffling up to each other and fighting. This is in the winter and in their winter plumage.

They remain until March, but I have never seen them begin to acquire the ruff here.

312. Limosa ægocephala (Linn.).

The Black-tailed Godwit is abundant in the winter, and remains until late in the spring.

313. Totanus calidris (Linn.).

The Redshank is tolerably plentiful in the winter.

314. Totanus canescens (Gm.).

a. ♀. Khartoum, Dec. 5, 1902.

The same remark applies to the Greenshank.

315. Totanus stagnatilis Bechst.

316. Totanus glareola (Linn.).

317. Totanus ochropus (Linn.).

The Marsh-, Wood-, and Green Sandpipers are all tolerably common in the winter.

318. Totanus hypoleucus (Linn.).

The Common Sandpiper is met with wherever there is water. It is tame and lively in captivity, feeding freely on chopped meat, fish, eggs, and breadcrumbs.

319. Numenius arquata (Linn.).

320. Numenius phæopus (Linn.).

Curlews and Whimbrels are both fairly common in the winter and spring, the latter birds being the most plentiful.

321. Gallinago cœlestis (Frenz.).

The Snipe arrives in the Soudan towards the end of September, and remains until the end of March. During these months two or three couple can generally be picked up along the White Nile at Khartoum, but they are seldom plentiful. Indeed I have not found them abundant anywhere in the country. I have seen them in small numbers in the swamps of the Bahr-el-Ghazal, but the grass in the marshes there is too high and rank to suit them, and throughout the Soudan there is, as yet, very little land under irrigation where they could settle down for the winter.

The Jack-Snipe (*G. gallinula*), of which Mr. Hawker killed one specimen at Fashoda in April 1900, I have never seen.

322. Rhynchæa capensis (Linn.).

I have flushed the Painted Snipe once or twice in September on the marshy ground at the edge of the White Nile at Khartoum. So far as my experience goes, it is a scarce bird in the Soudan.

323. Recurvirostra avocetta Linn.

The Avocet seems scarce in this part of the world. I have only seen small parties on a few occasions.

324. Himantopus candidus Bonn.

The Black-winged Stilt is plentiful, and may be met with at almost any time of the year.

325. Œdicnemus senegalensis Swains.

a. ♂. Blue Nile, June 12, 1901.

The Senegal Thick-knee seems to occur on all the Soudanese rivers south of the Atbara. East and west I have seen it on the Setit and as far as Meshra-el-Rek on the Bahr-el-Ghazal. Though a common bird it is usually met with in small numbers—a few pairs or parties of three or four in close proximity being the rule.

I have taken its eggs on three or four occasions on the Rahad, in April. Two appear to be the number ordinarily laid.

Mr. W. G. Percival, of the Agricultural and Lands Department, tells me that he has seen eggs in the same month on small islets opposite the mouth of the Atbara.

I once found a nest of this bird on a rock not more than two feet in diameter and surrounded by deep water. The eggs of the Spur-winged Plover, too, may often be found on the tiniest of islets. It seems to me unlikely that the chicks of these species can remain in such places for more than a day or two, and I imagine that the old birds must carry them across to the mainland at a very early age.

In Kordofan, when stalking *Oryx leucoryx* west of Mazrub, I have several times flushed a very dark-coloured *Œdicnemus* in the sandy bush-country. I never secured a specimen, and do not know what species it is.

326. Pluvianus ægyptius (Linn.).

a. ♂. Blue Nile, April 2, 1901.

The charming little Egyptian Plover is common all along the rivers of the Soudan wherever there are sand-banks. It is, as might be expected, absent from the regions of swamp and sudd.

Though very seldom leaving the margin of the river, it will sometimes take to frequenting a native village a few hundred yards inland. It then becomes more than usually fearless, tripping about the open spaces and "zaribas" among the tethered goats, or standing on the roofs of the mud-buildings within a few feet of a passer by.

In the winter it may be found in flocks of up to twenty, but pairs are, I think, commoner all the year round.

Its eggs are extremely difficult to find, and I have only once succeeded in obtaining them. This was on the Rahad River, April 10th, 1903. I found the nest under the following circumstances:—On the 9th I was fishing in a rocky pool. Opposite me was a sand-bank on which a pair of these Plovers was running about rather aimlessly. Presently I noticed one of them sit down on the sand. For nearly an hour I continued fishing and the bird did not move;

therefore, thinking there might be eggs underneath her, I walked round the pool, but when I got there the bird had gone, and there was nothing to mark the exact place. I raked up the sand with my fingers for some time at what I thought was the right spot, but could find nothing. Next morning I was again fishing at the same pool, and again the *Pluvianus* came and sat in exactly the same place. This time, to avoid having to take my eyes off her, I waded across the pool; she rose to her feet and ran off as I approached, and this time I felt the two eggs, under about an inch of sand, at the first attempt. This bird was sitting *on the sand above her eggs,* probably to keep the extreme heat of the sun off them. Neither in sitting down or rising did she scratch in the sand to expose or to re-bury them. This was about noon, and the heat on the sand was tremendous. There was no disturbance whatever of the surface to indicate the presence of the eggs beneath, and absolutely accurate locating from a distance was essential to finding them.

327. Cursorius gallicus (Gm.).

a. ♀. Khartoum, Nov. 27, 1902.
b. ♂. „ Jan. 30, 1903.
c. ♂. „ „
d. ♂. „ „

The Cream-coloured Courser is tolerably abundant on the deserts of the Northern and North-Western Soudan.

328. Rhinoptilus chalcopterus (Temm.).

Capt. H. N. Dunn, R.A.M.C., shewed me the skin of a specimen which he had shot at Roseires. I have not myself met with the bird.

I have since seen an example recently killed at Gondokoro.

329. Glareola pratincola (Linn.).

a. o. Khartoum, Feb. 22, 1903.
b. o. „ Jan. 1903.

Pratincoles are abundant, and are met with in pairs, small parties, or large flocks. Their habit of rising spirally in a column has been well described by Mr. Hawker. In the spring they may be seen in large numbers at Khartoum, hawking gracefully over the bean-fields of the natives.

330. STRUTHIO CAMELUS Linn.

The Ostrich is widely distributed through the country. I have seen it on the Setit, on the Dinder, on the White Nile and Bahr-el-Ghazal, and in Kordofan.

The shooting of Ostriches for sport is now entirely prohibited in the Soudan.

XXV.—*Notes on the Parrots.* (Part I.)

By T. SALVADORI, H.M.B.O.U.

THIRTEEN years have elapsed since the publication of the twentieth volume of the 'Catalogue of Birds in the British Museum,' which contained the Order PSITTACI or Parrots, and not much of a definite kind has been done since as regards the classification of the group, though many new species have been described and not a few obscure forms have been made clear. I have therefore thought it not useless to prepare a sort of Appendix to my previous work, in order to bring up to date our knowledge of the group.

As regards the general classification of the Parrots, some attempts have been made since the publication of the Catalogue, but I do not think that any of them are better than mine.

Messrs. Beddard and Parsons in 1893 published a paper, "On certain Points in the Anatomy of Parrots bearing on their Classification"*. They had studied the syrinx and the myology of the group, but it appeared from their remarks that they were not prepared to produce a complete scheme of classification of the Psittaci. A point, strange to say, on which they seem to have been more decided, is that *Stringops* does not deserve the high rank of the representative of a family !

Prof. Newton (1894), in the 'Dictionary of Birds'

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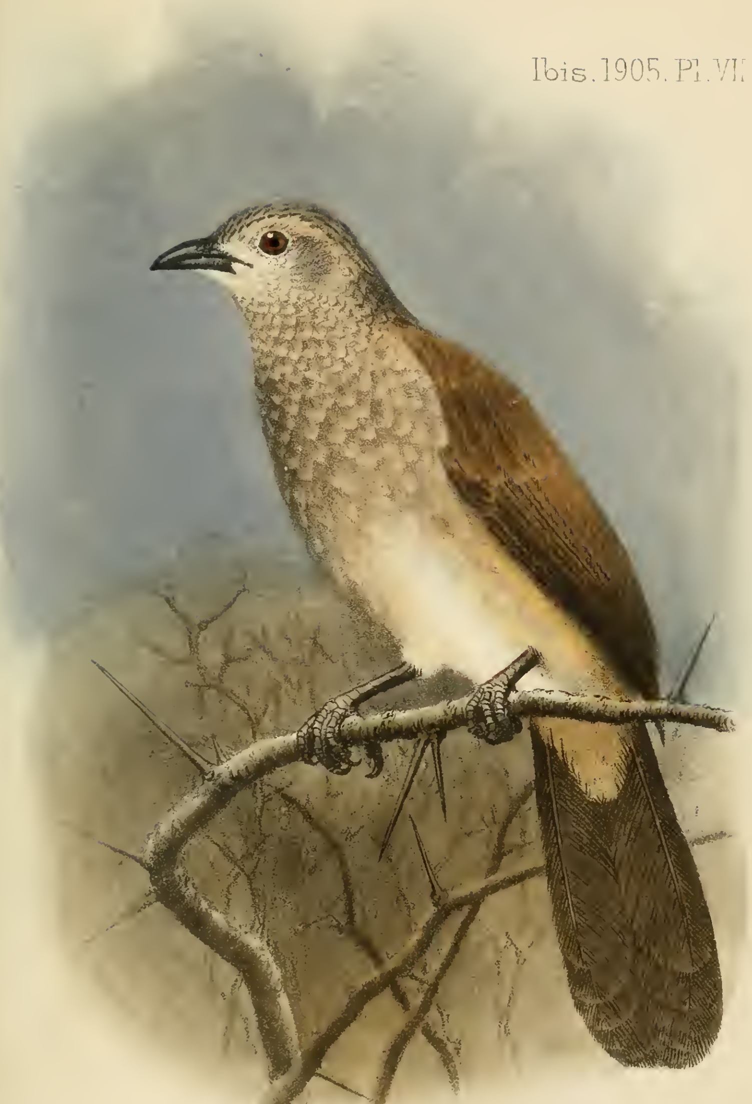
* Proc. Zool. Soc. Lond. 1893, pp. 507–514, pl. xli.



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CRATEROPUS CORDOFANICUS.